

**PREVIEW: NEW RC 10 INDY CONVERSION**

August 1988

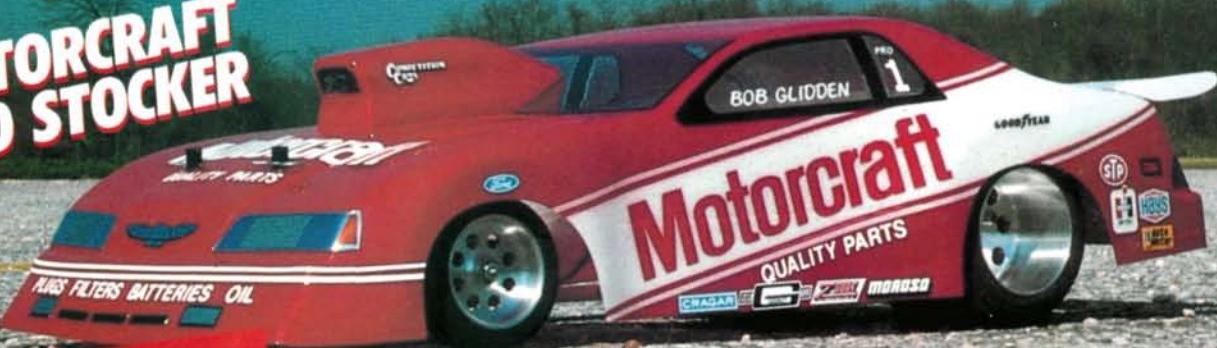


# Radio Control **CAR ACTION**

THE WORLD'S PREMIER R/C CAR MAGAZINE

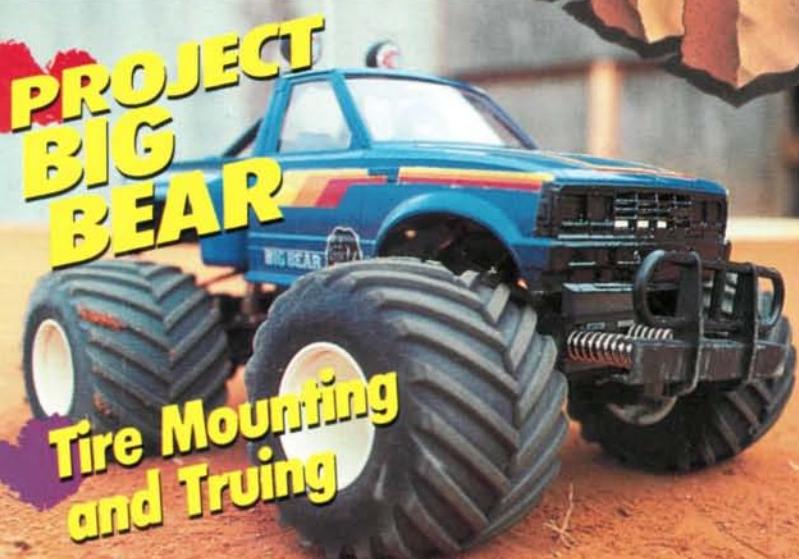
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08



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**COVER:** The central attraction on this month's cover is Ms. Christina Barth, who graces the sands of Laguna Beach, CA, with her RC 10, which was guarding her against two-legged land-sharks. (Photo by Courtland Llauger.) At the very top is Advanced Engineering's Super Sport RC 10 Indy car conversion. Von Erich Goldschrafe is at it again with this gorgeous  $\frac{1}{10}$ -scale rendition of the Motorcraft Pro Stocker. (Photo by Eric.) Jay Halsey tries to "do in" ace-face Clint Eastwood with a bomb-laden RC 10 in the movie "Dead Pool." Do it in the dark—enduro style. Fred Murphy illuminates a Fast Lane Exotics GTP Porsche with a RAM lighting setup. Below right is Fred L. Beaver's Project Big Bear, Part I.

# Radio Control CAR ACTION

# EDITORIAL

by LOUIS V. DeFRANCESCO JR.

**T**HE AMOUNT OF READER MAIL that's been flooding our offices lately is nothing short of mind-boggling. However, it's also frustrating, since we can only respond to a relatively small number of these letters. What's most compelling is that an increasing percentage of these letters comes from all over the world—including Australia, New Zealand and Japan, and more obscure places like Malaysia, Bolivia, Sardinia and Indonesia. It's usually the case that these readers thank us for providing them with an informative and colorful medium that helps them with their hobby. Without a doubt, these letters make our efforts rewarding, and we thank you all.

You've also sent pictures of some very innovative cars. We welcome these; many could be developed into good feature articles. We're always on the lookout for new contributors, so if you have a neat car modification, a technical idea, or just about anything that pertains to radio-control car modeling, just drop Chris Chianelli or me a note and include some photos, and maybe we'll be able to give you information on how to develop it for possible publication.

We've started preparing for two big races that we'll be sponsoring during the latter part of this summer. The first will be held on the weekend of September 3 and will be the Car Action/Trinity Dirt Shootout. It will be hosted by R&R Hobby and Raceway in Quincy, IL. The other race will be our second annual Car Action Weekend hosted by Lake Whippoorwill Speedway in Orlando, FL, and it will feature  $\frac{1}{10}$ -scale superspeedway stock-car action. The dates will be September 22 through 25. Both events promise to be spectacular, and you might want to check one out if you're in either region. Look for the ads in this issue.

We have another information-packed issue for you and are working on some future "specials" that are hotter than a modified wind. Also available soon will be our first annual Car Action Yearbook, which is jammed with the best articles we've published to date. It would make a great addition to your R/C technical library, and it will be available at most major newsstands or at your local hobby shop. Enjoy! ■

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# Letters



POSTAGE

DC

## Interference Inquiry

I'm a 32-year-old male who, at 18, suffered a stroke. Today I get around in an electric wheelchair. Do you think my chair causes any interference between my radio and car signals? Also, do you know of any one-handed radios? I own a Futaba FP-T4L 4-channel radio and have both controls wired to one side. If there's anything else out there, I'd sure like to know, as I'm going to try my hand at racing.

SHAN THE MAN  
San Bernardino, CA

*Shan The Man, I'm not an authority on radio transmission and the causes of interference, but it is possible that your electric chair is causing some of your radio problems. It's feasible you'd get interference while you're operating your chair, but that's only a guess. There are others who could give you a more conclusive answer. How about it? Are there any electrical engineers out there who can give Shannon some solid advice? If so, contact Shannon Bryan, 25180 Pumalo, #9, San Bernardino, CA 92404.*

*To address your question about the radios: I don't know of anyone who manufactures a one-handed radio system. I've successfully used a wheel-type radio with my thumb on the steering wheel, but the setup on the 4-channel radio you mentioned seems to be the best method. Good Luck!*

You can even use my Wild Willy for the test.

JAMIE KRINSKY  
Queens, NY

*Jamie, thanks for the good words on the "Monster Truck Shootout." I'm sure your Wild Willy is everything you say it is, but I don't know if you'd want it back after we got through with it! Thanks for the offer anyway!*

SP

## Shock...Confusion

I think you have one of the greatest magazines, but I'm confused about an article you did in your Dec. '87 issue, entitled "Project Monster Beetle." In the article, you said that you used a Hot Trick Red Prince chassis and four pairs of Kyosho Option House shocks. You also said that when using a Hot Trick chassis, RC 10 shocks must be used, even though you used Kyosho shocks. That's why I'm confused.

ROGER FRISBEE  
Valencia, PA

*Roger, the Hot Trick chassis in question must use Associated-type shocks; it doesn't have to use Associated shocks. The Kyosho Gold shocks are virtually identical in size and shape to the Associated shocks, so they can be used as well.*

SP

## Racy Women

You said you wanted to hear from women who are involved with R/C cars. I'm very interested in how many women across the country race 1/4-scale cars—especially in California.

I plan to enter my first race in May, at Mile Square Speedway in Fountain Valley, CA. I have a Raco Grand National, and it feels as though I'm the

*(Continued on page 10)*

• • • • •  
**COMING  
MONTH NEXT**

**DIRT-  
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SPECIAL**

**Featuring:**

- JG Oval Championship results
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**Also on Deck:**

- Project Big Bear, Part II
- Joel Johnson gives you the "Racer's Edge!"
- First full-blown track report of the new Tamiya Avante



**LOOK FOR IT  
ON YOUR  
NEWSSTAND**

# Letters

(Continued from page 8)  
only woman in this area who owns her own car.

Many male drivers are very supportive and would like to see more women involved in the sport. I hope you can help me get some response from other women.

Frenacee Coleman  
Fountain Valley, CA

*Frenacee, by running this letter, I hope we can answer this much-asked, but seldom-answered question: How many women are racing R/C cars? If you'd like to hear from others, please include your full address next time, so the readers can contact you through RCCA.* CC

**Power Hungry**

I'm a 13-year-old R/C car enthusiast. I think your magazine is great. I have a problem with my Kyosho Icarus. I recently purchased a Revolution Insane, and it keeps throwing out my rear end. Is there a way I can hop-up my Icarus so it can handle this motor?

Frank Mattei  
Canton, MI

*Frank, are you nuts? A Revolution Insane? I think you bought the motor because you like the name. The Revolution Insane is a killer motor, but in a car like the Icarus it will just kill the diff. Entry-level cars like the Icarus, Hornet or Manx were never designed to take that kind of power. I'd stick with a stock wind if I were you. But if you insist on overpowering your lightweight entry-level cars, you should consider a replacement ball diff like the Thorp unit. You're all out of your minds! (Takes one to know one!) CC*

**No More Spot Welder Special**

Your magazine is very thorough and the reviews are superb. I enjoy reading the articles and the Shootouts.

I own a Kyosho Optima and have been having trouble with the supplied speed controller. The local hobby shop

said that the speed controller was probably burnt out. What should I do?

Jeff Shafer  
Georgetown, OH

*Jeff, your local hobby shop owner is probably right; it's burnt out. When under a load, the foil panels on the switching plate easily get holes burned through them by the wiper-arm tip. To those of you who have yet to buy a Kyosho car, I'm happy to say that this controller has been replaced with a newer type. Current Optima owners need not worry or think they must buy an electronic unit. Parma and BoLINK make a very durable mechanical type at a fraction of the cost of an electronic type. We'll feature these controllers in our new column, the "Budget Racer." Thanks for reading RCCA.* CC

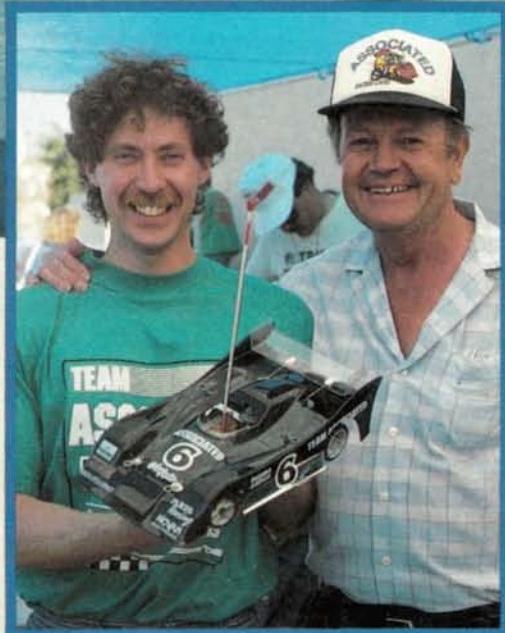
**Big Brute**

I'd like to thank everyone who has made this car magazine the best, with lots of information and great tips. How was the Kyosho Big Brute (June '88 issue) radically modified? Keep up the great job.

Elbert Chen  
Fort Wayne, IN

*Elbert, the twin-motor Brute you saw in the June "Inside Scoop" wasn't the creation of an R/C Frankenstein. It's an upcoming twin-motor production monster truck that should be available in early fall. I mentioned that it "looks like this is Kyosho's answer to the Clod Buster"—you guys have got to read not just look at the pictures!* CC

We welcome your comments, opinions, and suggestions. Letters should be addressed to "Letters," Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897. Letters may be edited for clarity and length.



Above: Just before the start of a heat, drivers line up their cars for a Le Mans start.

Left: Tony "Van Halen" Neisinger and Gene Hustings of Associated Electrics grin broadly after bringing home top honors at the Trinity Shootout.



by MIKE LEE

**I**N THE DAYS of the Old West, a showdown was the way to prove who was the toughest. In those days, the gunslingers would meet at some open place and then blast it out. Today, that doesn't go over very well with the cops, but, in racing, we still have our own form of shootouts—big races with the top guns going at it head-to-head.

This is the theme of the last of the big road races for  $\frac{1}{12}$ -scale cars—the Trinity\*  $\frac{1}{12}$ -Scale Shootout. This year, RCCA ventured to Ranch Pit Shop\* in Pomona, CA, for the third Shootout sponsored by Triniti Motors and Ranch Pit Shop. The idea behind the race is simple. You bring together the top 20 drivers from around the nation, and they slug it out for trophies and honor. With its excellent paved road course and retail facility, which helps to keep the drivers

# TRINITY SHOOTOUT

## HIGH NOON FOR THE QUICK-DRAW DRIVERS

race-ready, the Ranch Pit Shop is the perfect place for such a race.

On April 30 and May 1, 100 Non-invitational drivers were permitted open entry in their own class of modified  $\frac{1}{12}$ -scale. Standard R.O.A.R. rules applied with eight-minute heats and Mains. Over 50 drivers were turned away after the first 100 had been accepted. Popular event!

The top 20 drivers included national champs like Joel Johnson, Mike Lavacot, Tony Neisinger, Gil Losi Jr., and Kent Clausen. There were some drivers who seemed out of place on a road-course, but they had previously conquered off-road courses. These drivers are talented on *any* course!

The road-course was a wide open setup. Looking at the course from the driver's seat, we start from a 50-foot straight, just in front of the drivers' stand, moving from right to left. The first turn is a 100-degree fast right-hander that goes 15 feet to turn two. Turn two is another fast one, going about 145 degrees left. We stay on the power as we hit turn three to the right, and punch it for just a blip. Turn four is a hard, 180-right hairpin leading to the hard left and right of turns five and six. Taken correctly, we zip right through this "S" and then take a hard right onto the main straight. For a glorious 100 feet or so, we stand on the throttle. At the end of the straight, we



Winners (left to right): Andy Comrie, Bob Light, Joel Johnson, Gil Losi Jr. and Tony Neisinger, flanked by Gil Losi Sr. and Janet Losi of Ranch Pit Shop.

get on the binders for the mild 180-degree right hairpin at turn seven. We accelerate gently to the sweeper of turn eight, which is a fairly fast 190-degree left turn. If we hug the inside, we can bail out early and head straight for the final turn, a little over 90 degrees hard right onto the front straight and back to the finish.

The lap time on this

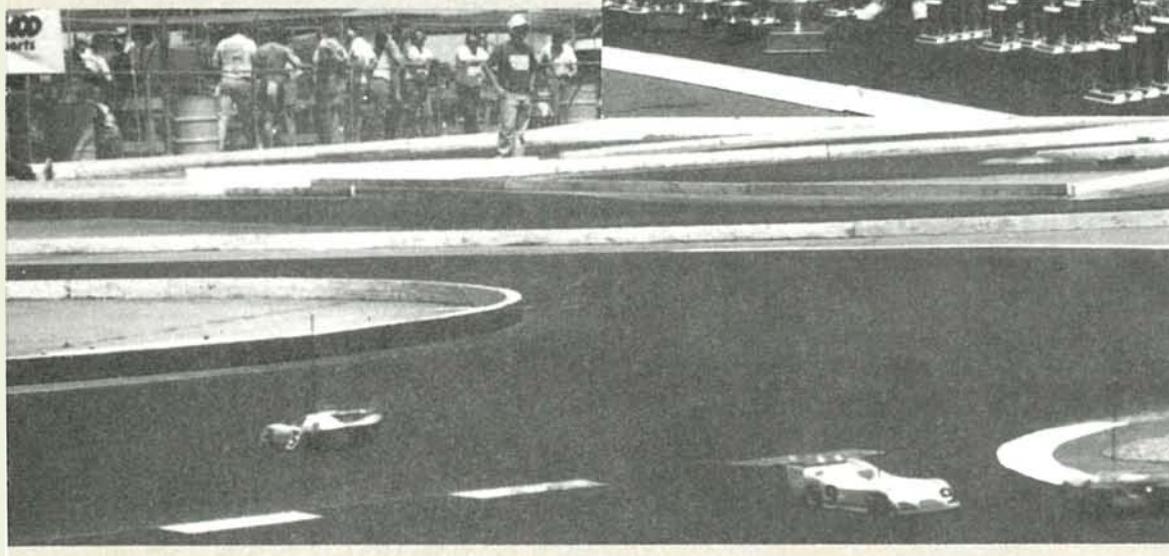
course was fast at 14 seconds. Average drivers took a 15- to 16-second lap. Still, this was flying! Traction on this course was excellent, with VHT tire traction laid down. With good traction and high speeds, the tires really took a beating, and most drivers used a set for each run.

The racing started on Saturday, with standard qualifying heats; the 120 drivers spent at least three races qualifying,



Above: On the left, "The Big E," Ernie Provetti (president of Trinity) and Gil Losi Sr. of Ranch Pit Shop stand among a sea of trophies that were handed out at the Shootout.

Left: The track at Ranch Pit Shop was challenging for the racers. Can you guess who's going the wrong way?



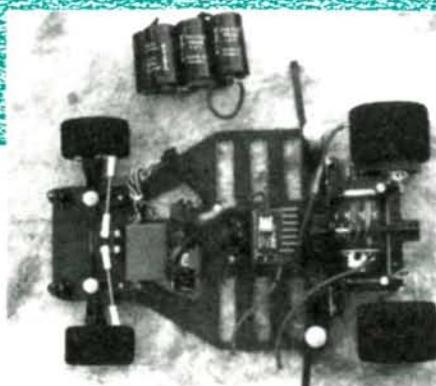
# SHOOTOUT

eventually making for Mains that extended down to the I Main. Craig Bowring of Australia made the TQ (Top Qualifier) position for the Non-invitational Class, and Bob Light, of Oklahoma City, OK, qualified number one in the Invitational Class. This was no small feat for either of these drivers, as both had more competition behind them than they cared to think about.

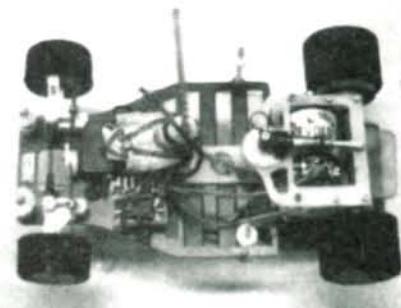
Sunday morning gave way to a perfect Southern Californian day, with bright sunshine and a temperature in the low 70s. All drivers were given the benefit of a practice heat, driving against the drivers they would face in the Mains. This is a novel idea, and it allows the drivers to size up the competition and to adjust their cars accordingly. Speaking of adjustments, I watched with great interest as some earnest drivers went about making adjustments with calipers, sophisticated measurement charts and electronic devices for battery output.

First, the top three Mains of the Non-invitational Class. In the C Main race, TQ Mike Eads was displaced coming out of the starting blocks by Jeff Schneider, Bill Martin and Ron Paris. This didn't last long, as Ron survived a small collision that temporarily took out Schneider and Martin and allowed him to take the lead. Ron ran fast for about four minutes, until Schneider started closing fast. Ron seemed to have trouble with his radio, and that allowed Schneider to sneak up, but he later hit a turn marker and fell back. Meanwhile, Jake Gutierrez took over the third spot, where he stayed for the rest of the race. Ron eventually took the race, with Schneider coming in second.

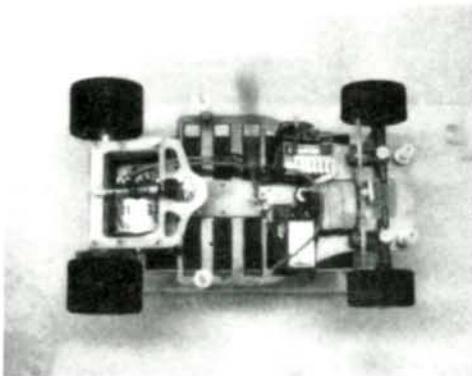
In the B Main, Mace Horowitz jumped into the lead, followed by Jonathan Holman and Randy Tentschert. Randy took the lead within the first minute, and then ran away



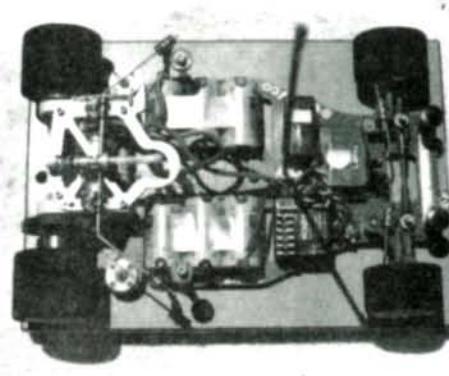
Although Frank Killam's TRC car made it to the A Main, a break put him out of action.



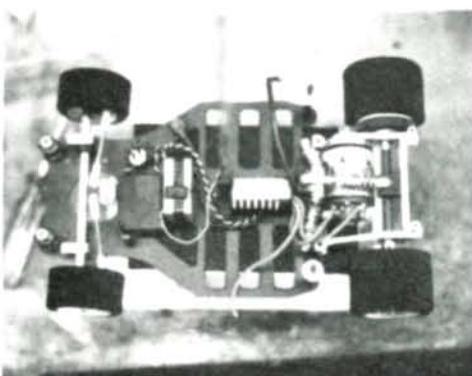
Ron Rossetti's 12L featured Prime Time Batteries, Novak speed controller and receiver and a Futaba steering servo.



This bird's-eye view of Jack Johnson's Associated 12L/Losi street machine reveals the extended T-plate.



The prototype car driven by Kent Clausen had a rear sway bar, and the suspension pivots were located on the outside of the chassis.



This Delta car was driven by Gary Kyes of Ranch Pit Shop.



Losi's modified car was also an Associated 12L using a Team Losi Revolution motor and Losi rubber.

from the crowd, leaving Mace and Jonathan to compete for second place. Mace clipped a turn marker, allowing Jonathan to slip by at the halfway mark. At six minutes down, the fierce battle between Jonathan and Mace allowed both to make up time on the leader,

now only a straightaway ahead. The battle turned when Jonathan hit a marker and Mace rushed by. That ended the battle, leaving Randy to take the checkered flag with Mace Horowitz second and Jonathan Holman in third.

(Continued on page 52)



# The Inside Scoop

by CHRIS CHIANELLI

**T**HE R/C CAR industry is rapidly advancing, with new products being offered at a head-spinning rate. So, I'll make manufacturers nervous, but feed you R/C squirrels who are hungry for info, by bringing you a special report on security leaks and "late-in" items. Here goes!

## MILITARY-GRADE CHASSIS

**D**ue to some predictions of even larger cuts in the defense budget, a very large plastics and composite consortium, which, in the past, has relied heavily on government contracts, is rumored to be using their plastics and composite expertise to branch out into the manufacturing of R/C car chassis and bodies—there's talk of future car kits. Sources have even alluded to a Lexan replacement!

\* \* \*



## 1/8-SCALE CONVENIENCE

**A**ndes Hobbies of Laguna Hills, CA, is now importing the new Shinwa all-in-one tote panel—at least, that seems like an accurate description to me. Anyway, what's really tricky about this product is that the battery is encased below the panel, which has all the necessary voltage outlets on its face, i.e., 1.5V or 2V for the plug, amp meter, outlet for pump with "in" or "out" switch and a 12V access for your starter, which, as I understand it, can be bumped to 18V for added "umph". Thanks for bringing this handy product to the States, Mr. Salsa.

## CAR COMP

**S**teve Porter of Quarter World Products, Inc., has just announced the introduction of a new on-board computer system for 1/4-scale cars. The system is said to measure acceleration, braking, lateral acceleration and vertical movement. Such a system has a wide variety of possible applications that will aid 1/4-scale enthusiasts to dial-in their cars for maximum performance. On the drawing board at Quarter World is a method of linking the on-board computer to the radio system, and this will actually prevent the driver from applying too much throttle and spinning out. It monitors slip angle to keep your car from nosing off the track—and more! Information is still sketchy, but plan on hearing more about this dynamite new system in the future!

\* \* \*



## ERNIE CAUGHT THE CAT

**T**rinity Products, Inc. has announced that, as of June 1, 1988, Trinity and TRC will share the exclusive on the Schumacher Cat. Ernie promises that this exclusive will mean no more elusive Cat and parts. The car will be marketed differently—directly to hobby shops. The intent is to give better technical advice and faster service to customers, and to vastly improve availability.

The new Cat XLS kit has many improved features (front diff, front/rear geometry kits) already included at no extra charge to the dealer, so this should be passed on to you, the consumer.

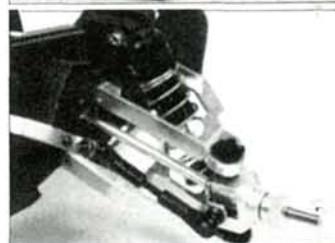
Trinity and TRC have committed themselves to further development work on the current World Champ, the Schumacher Cat.

\* \* \*



## AFTER-MARKET NSR 500 FUTURE

**I**t looks as though some think there's a future in after-market sales for the Kyosho motorcycle. A company, which will be nameless for the moment, is offering a replacement oil-



## A ROSE BY ANY OTHER NAME

**J**ealousy... What kind of a name is that for an off-road machine! Sounds more fitting a title for those idiotic paperback romance books you find in grocery stores. I wouldn't care, but this Hirobo car looks like it has the right stuff, and it deserves a more appropriate name. But performance is what counts. A hot car by any other name is still a hot car. With metal upper and lower A-arms, mid-motor location and belt drive, this one looks like it might be really hot. Unless you're a lovesick racer, I'm sure you hope, as I do, that this car comes to the U.S. under an alias—something like "Vengeance" or "Big Bopper."...Please!

\* \* \*

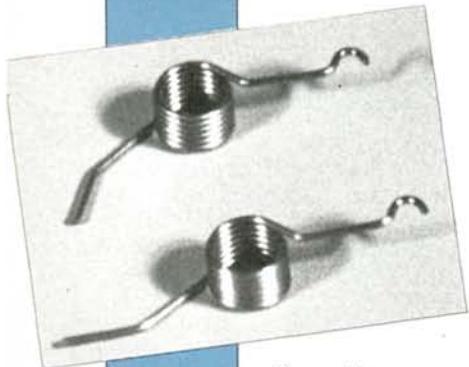
*Keeping the industry BUGGED, I'll see you next time—or sooner, if I catch you in my spyglass!*

CC

# MOTOR SPRING TENSION

by PHIL SROKA

A minor detail with major results.



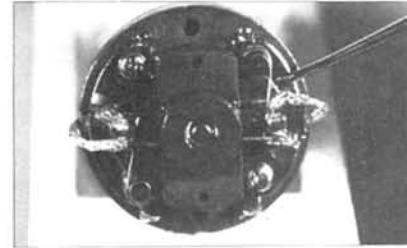
*Above: These springs may look alike, but the spring on the top is bent to release some spring pressure, while the spring on the bottom is bent to increase the spring pressure.*

**M**OTOR spring tension, weight loss and gearing must all work together if you're to have a finely tuned machine, and the most efficient race-winning combination. Did you ever see two apparently identical cars racing on the track and then notice that one had a marked speed advantage? The owner of the faster car probably took time to ensure that the motor was running at its peak potential. Using a new Revtech stock motor, I'll show you a few ways to extract more power by fine-tuning.

First, inspect the brushes to make sure that the motor is fully broken in. This has occurred when the contact area of the brush is fully curved and has no flat spots at the edges. If the motor isn't fully broken in, the spring tension will have little effect on increasing power output.

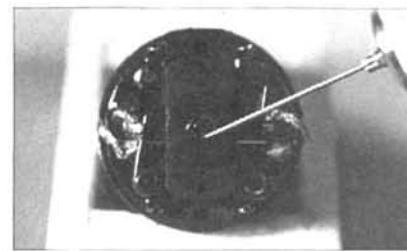
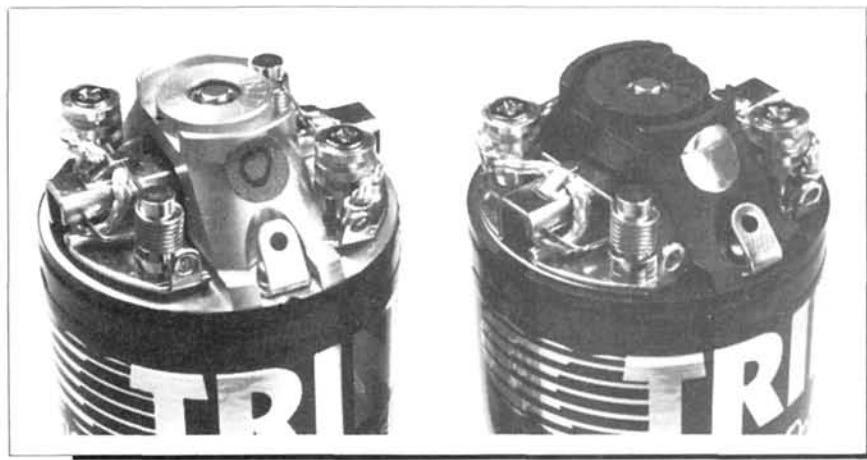
Next, to provide the motor with power, hook it up to an adjustable-current charger. Standard chargers can't be used, because they produce too much power, and this can easily throw

*Above: For optimum performance, it's good to get into the habit of oiling the end bell bushing on stock motors as well as keeping an eye on spring tension. Below: With the motor running, carefully apply and release pressure on the motor brush to determine which will work for your application, and then adjust spring tension accordingly.*



*different pressures to help you tune your motor.*

Clean your motor regularly to gain speed and prolong motor life. Oil the bearings every time you clean the motor. This will give you not only the fastest, most efficient motor, but will also increase the reliability of your race car. You have to finish it to win it! ■



a wind and destroy a motor. If you don't own an adjustable-current charger, use a partially charged battery pack. Before turning the power on, use a light oil to lubricate the bushings on both sides of the motor.

For the next step, a small crotchet hook works well. Turn on the power, then (using the hook) release the pressure on the brush while carefully listening to motor rpms to find out if the motor gains or loses speed. This will tell you how the spring will have to be bent to produce more power.

If no increase is noticed when you release the pressure, try applying more tension while listening for an increase in speed. Using long-nose pliers, bend the spring to maximize speed. Revtech provides springs with different pressures to help you tune your motor.

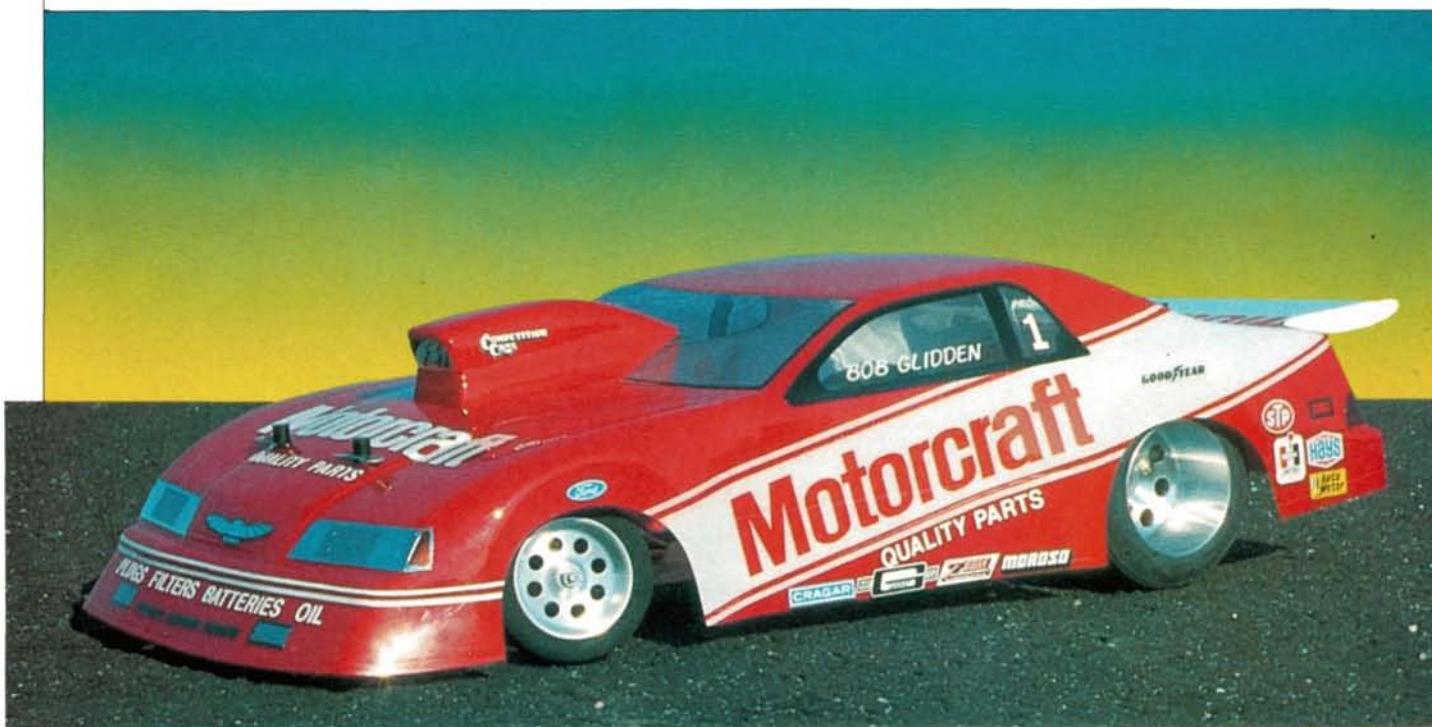
Clean your motor regularly to gain speed and prolong motor life. Oil the bearings every time you clean the motor. This will give you not only the fastest, most efficient motor, but will also increase the reliability of your race car. You have to finish it to win it! ■

by ERIC GOLDSCHRAFE

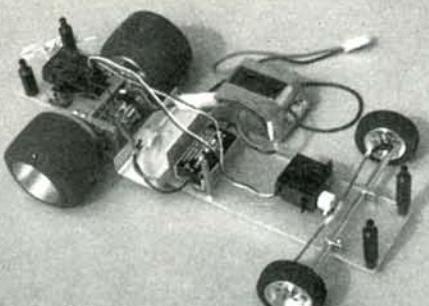
# ADVANCE MOTORCRAFT

**T**HE EXCITEMENT AND TENSION of Pro Stock nearly defies description! Imagine two late-model sedans inching into the staging lights at a drag strip. As the indicator lights come on, the thunder of 500-cubic-inch engines climbs to 8,000rpm. The "ready" lights come on, followed in four-tenths of a second by the green. Lightning-quick reactions (measured in thousandths of a second) launch the cars towards the finish-line speed traps, which are 1,320 feet away. In just a wink over seven seconds, the drivers have shifted four times, and reached speeds of over 180mph as they flash across the line. Drag chutes blossom behind the cars as they pull off the end of the strip and the engines are silenced. The winner advances to the next round; the loser goes on the trailer. Most of the time, the two cars are quite evenly matched, and the win is often decided electronically to one-thousandth of a second. Even if one car encounters some mechanical difficulty and slows, his opponent doesn't back off; the fastest times determine who gets the all-important first choice of lanes for the next run.

These are the most sophisticated and difficult-to-drive cars in drag racing, and they're not for those on a tight budget. Custom-built tube chassis wear button-on body panels following stock outlines and are painted with outrageous color schemes. The dominating hood scoop hides an often-secret-design "tunnel-ram" manifold connecting



**ADVANCE ENGINEERING SPREADS ITS WINGS  
WITH THIS T-BIRD PRO STOCKER.**



*Left: Final assembly shows Trinity Drag motor, Robart speed control and a 14-cell 1/2-sub-C battery pack. Below: Section was added on top of motor brackets for better body mount.*

## ADVANCE ENGINEERING

### DRAGIN PRO STOCKER

Type ..... Street rod  
Scale ..... 1/10

**DIMENSIONS:**

Overall Length ..... 17 inches  
Width ..... 9 inches  
Height ..... 5 3/4 inches  
Wheelbase ..... 10 1/2 inches  
Front Track ..... 8 inches  
Rear Track ..... 8 1/4 inches

**WEIGHT:**

Gross (w/rec. bat.) ..... 3 lbs., 7 ozs.

**BODY:**

Type ..... Ford Thunderbird  
Material ..... Lexan

**CHASSIS:**

Type ..... Flat plate  
Material ..... Fiberglass

**DRIVE TRAIN:**

Type (prim./sec.) ..... Direct drive

**SUSPENSION:**

Type (f/r) ..... Spring-loaded kingpin

**TIRES:**

Front: Type ..... Grand Prix, 1 1/2 inches  
Rear: Type ..... Grand Prix, 1 1/2 inches

**ELECTRICS:**

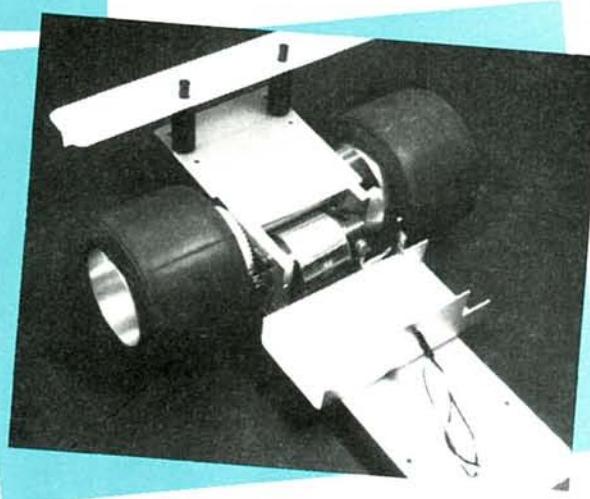
Bearing Type ..... Ball bearing  
Battery Type Req. ..... 6-cell

**OPTIONS (as tested):**

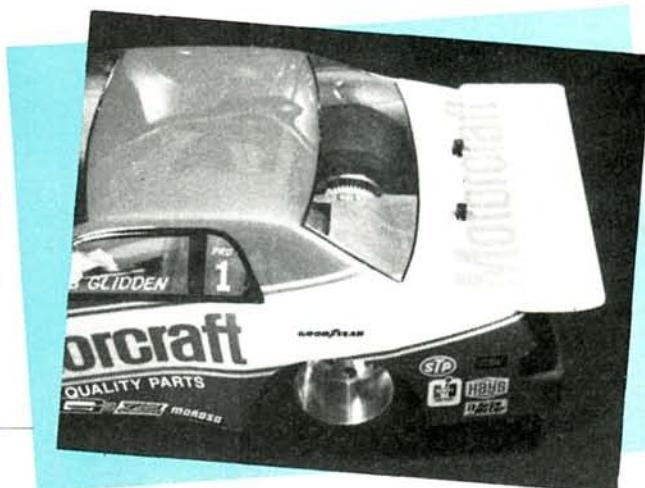
Trinity Drag Motor. Robart 505 electronic matched Sanyo 6-cell pack from Parma.

**COMMENTS:**

The car tracks beautifully; rear tires stick almost too well. Meets manufacturer's claims.



*Above: Hood scoop was mounted from beneath, through a hole cut in the hood. Right: Rear spoiler was made from sheet styrene and mounted in place of the original NASCAR spoiler.*



two huge carburetors to the monster V8 engine. Super-wide slicks hunker under the bulging quarter panels, which are topped by a big laid-back spoiler. The major National Hot Rod Association (NHRA) events attract dozens of entries from all over the country, and qualifying times are very close. It's a big deal just to be able to make the 16-car elimination field! The tension of competition is even greater through the third, second and final rounds, and one would think (and rightly so) that it's anybody's shot for the big win.

There are many fast cars and great drivers, but in 60 events, Bob Glidden

was the top eliminator—Pro Stock's "Top Gun."

Driving the only Ford in NHRA P/S competition, Glidden captured his eighth World

Championship in 1987. Backed by a pit crew consisting of his wife and two sons, Bob Glidden is generally considered

to be the man to beat. This quiet, gentle man from Whiteland, IN, is all business once he's behind the wheel of his Motorcraft-sponsored

Thunderbird. His determination and experience have led to a consistent winning streak. This must prey on the

(Continued on page 83)

# RC TECH

by CAM & JEFF PALMER



**T**HE ASSOCIATED ELECTRICS\* RC 10 is the most recognized, most modified and most feared car on the RC race-car circuit. In this article, and in the two which follow, we'll discuss some modifications that will improve the RC 10's performance. The information presented in these articles is supplemental to the "Associated RC 10 Assembly and Operating Instructions" provided with the kit. Specific references will be made to steps discussed in the assembly booklet, so have it handy. We've assumed that the stock bushings have already been replaced with ball bearings, so let's start by improving the differential (diff).

- **Filing and De-burring Gears:** One of the most loathed and most-often skipped steps in assembling the RC 10 is the filing and polishing of gears, but doing this increases power and motor life. The drive and pinion gears are gray metal castings, and the idle and spur gears are white nylon. If each tooth was examined individually, on some you'd find a small ridge of extra material, and on others you'd see a small burr. Removing these

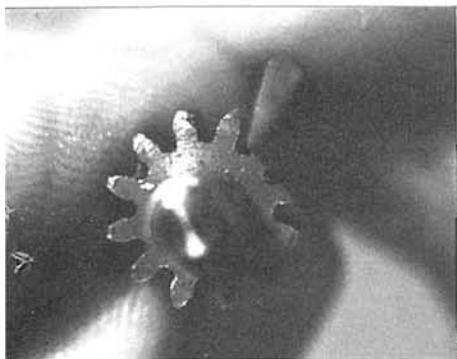
irregularities is called "de-burring."

To do this job, we use the X-Acto No. 6368 needle-file. This is a thin triangular file that can reach the base of each tooth. Each tooth of the metal gears should be polished to a smooth silver luster. To speed the process, we've also used a

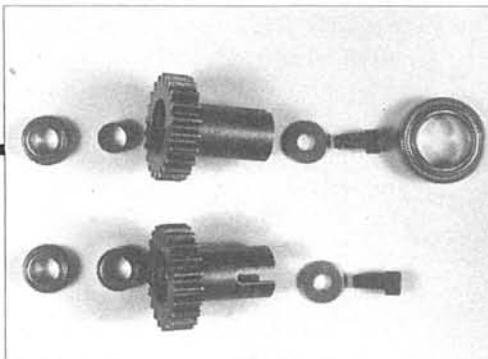
Dremel\* Moto-Tool fitted with the Dremel carbide cutting blade No. 409. Use a light touch, or this tool will ruin the gear. *Don't use the Moto-Tool on the nylon gears.* In fact, unless you're experienced with this tool, don't use it here at all! If used properly, the Moto-Tool will leave



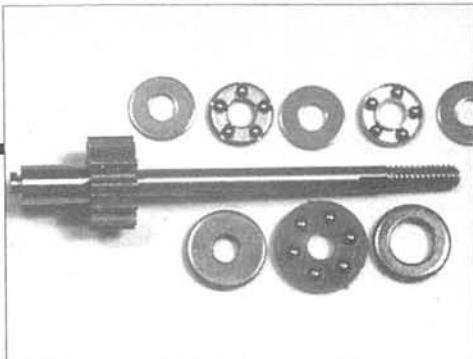
Some useful supplies, such as alcohol, sandpaper, small file, X-Acto knife, tapered reamer and lubricants are very helpful in preparing your differential.



A thin needle file is used for de-burring the gears, because it's able to reach the base of each tooth.

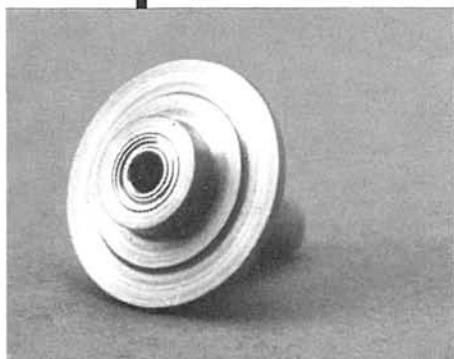


Use of output bearings (top) will add rigidity to the diff and increase the life of the dog bones.

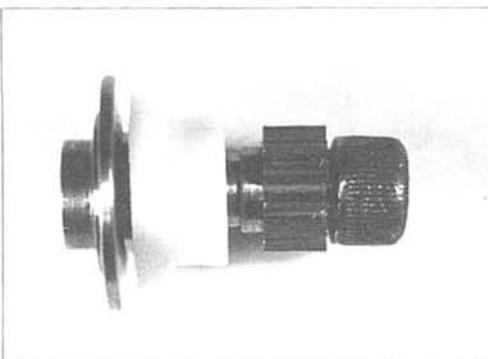


Two sets of the Parma No. 1420F thrust bearings are used to replace the stock bearing.

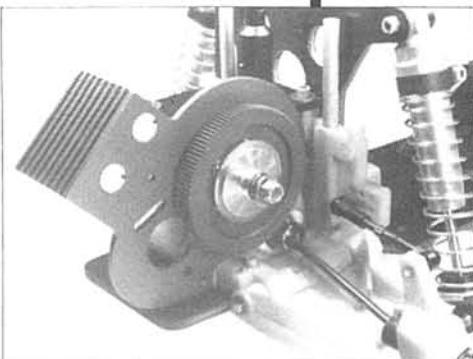
## HOW TO GET THE MOST FROM YOUR RC 10 WITHOUT SPENDING A FISTFUL OF DOLLARS!



The Team Losi Diff Tube with a ball bearing adds stability to the diff shaft and greatly reduces wear.



By grinding down the threads on an Allen-head bolt, or finding a bolt that will fit snugly in the diff tube, you can press the gear on for a slip-free fit.



Unlike the stock 32-pitch gears, the 64-pitch gears, such as this set from Trinity (used for the RC 10 update), run smoothly and quietly.

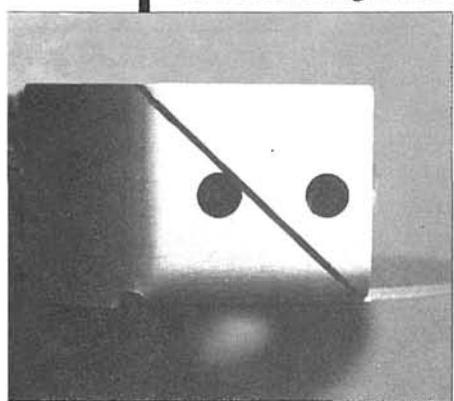
light rings in the surface of the tooth, and these can be easily removed with the file. Don't forget to clean the filings from the gears; we use BoLINK's\* Electro Whirl BL-6025, or Reedy's\* Motor Cleaner for this.

- Spine Plate: The spine plate contains the transmission gears—the two drive gears and the two idle gears. During the assembly of the drive gears, we decided to use Dart's\* No. 272 Output Bearings to add rigidity and increase the life of the dog bones. To do this, we

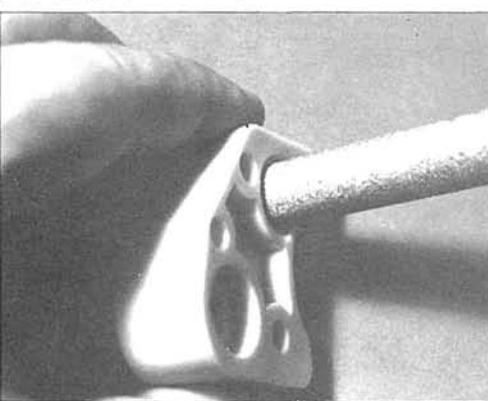
substituted the brass bushings that come with the Output Bearings for the non-flanged bearing in step No. 37. Failure to replace the non-flanged ball bearings with the brass bushings could result in the binding or even the seizing of the drive gears.

To check the success of the spine-plate assembly, place one of the drive gears and one of the idle gears on their respective pivots. (Don't E-clip or screw the gears on.) Spin the

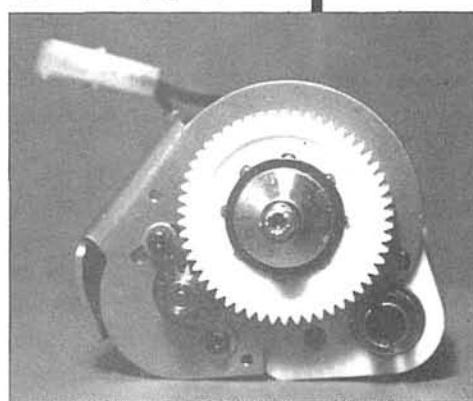
(Continued on page 68)



By cutting the motor mount on the line shown above, you can save a little weight.



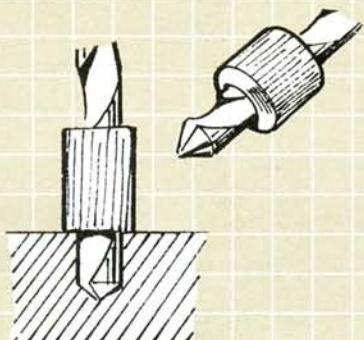
Installation is easier when you use sandpaper to enlarge the hole for the bearing adapter.



The completed RC 10 transmission.

# Pit Tips

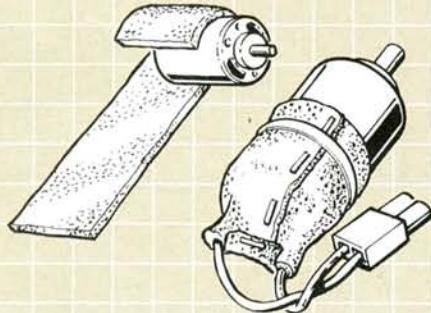
by JIM NEWMAN



## DRILLING BLIND HOLES

If you need to drill a hole that doesn't go all the way through, an easy method of marking the drilling depth is to wind a strip of masking tape around the drill and drill into the material until the tape is just touching the surface of it.

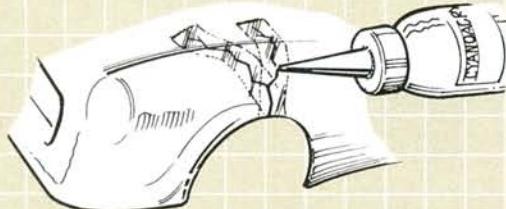
Jonathan Flores, Ewa Beach, HI



## DUST FILTER

Needing a filter, this inventive owner took two used foam fabric-softener sheets, rolled them around his motor, and stapled them closed along the edge and across the ends, leaving the wires protruding. They keep out dust and allow the engine to receive cooling air.

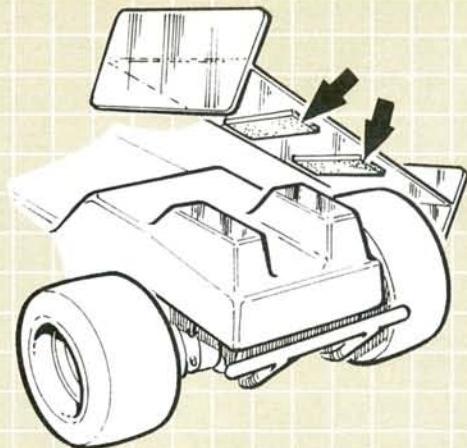
Tim Elias, Ben Lomond, CA



## CRACKS IN BODYWORK

If your car's bodywork suffers cracks (especially if the body is molded from Lexan®), you can join the cracked plastic tightly by applying cellophane tape on the inside and then applying a few drops of CA glue and a shot of accelerator to the cracks. Once cured, the area can be sanded with No. 400 and No. 600 wet or dry paper and soapy water and then polished with metal polish. It's difficult to find the crack afterwards.

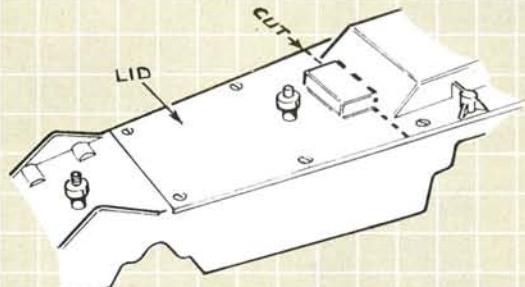
Michael Scanlan, Woodbury, MN



## WING FATIGUE

To eliminate fatigue and cracking around the screw holes where polycarbonate wings attach to the bodywork, instead of screws, nuts and washers, use pieces of double-stick foam tape to attach the wing. This spreads the load across the mounting points, provides cushioning against vibration and allows the tape, not the plastic, to tear away in an accident.

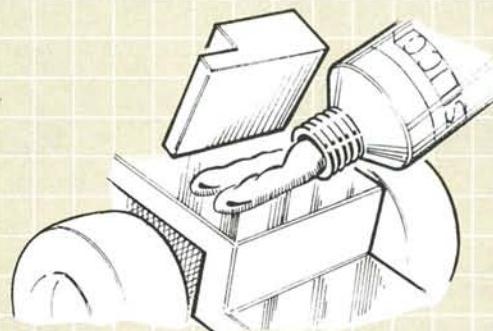
Michael S. Durack, Hamilton Heights, W. Australia



## FOX-QUICK ACCESS

If you need to get at the Fox servos and speed controller quickly, you'll be slowed by 11 screws. To speed access to these components, this car owner recommends cutting across the radio box at the point shown; you now only need to remove four screws. The join can be sealed with a strip of vinyl tape to keep out dirt and water.

Keith Hoefer, Delavan, WI

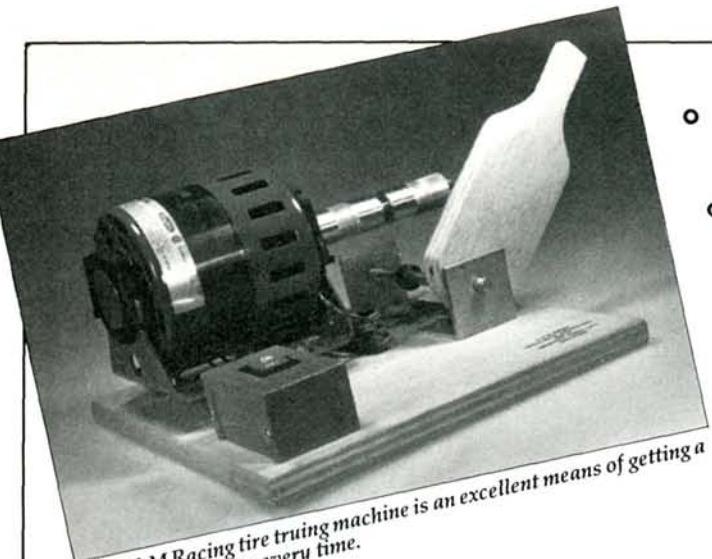


## BETTER SERVO MOUNTING

When mounting his receiver and servos, etc., this young driver found that double-sided adhesive tape had its limitations. A method which suited him better was setting them in a thick layer of silicone rubber sealer. This held firmly, yet peeled away without leaving any sticky residue when he needed to remove the components.

Jim Moore, Toledo, OH

Radio Control Car Action will give a free one-year subscription (or one-year renewal if you already subscribe) for each idea used in "Pit Tips." Send rough sketch to Jim Newman, c/o Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO, AND NOTE YOU SUBMIT. Because of the number of ideas we receive, we cannot acknowledge each one, nor can we return unused material.



The T&M Racing tire truing machine is an excellent means of getting a perfectly trued tire every time.



As well as a way to true the tires, you'll also need some Black Magic cement, a set of untrued donuts, a set of wheels and a Kimbrough tire horn.

BY STEVE POND

**W**HEN WAS THE last time you were racing an on-road racer and wished you had a set of green compound tires instead of a set of blues? What about the chunk you took out of your only set of tires before the Main, and had no way to repair them? Then there's the visit to the hobby shop to stock up on tires for the weekend races, only to find that they're out of those ever-popular mounted and trued tires. Did you spend weeks painting that sparkling concourse body, only to discover that racing tires do nothing for the scale appearance of your car? Has a set of tires worn out to the detriment of your car's handling and your chances of crossing the finish line in the top three?

Any of the above scenarios can be frustrating, but the real setback is when these problems cost you money and affect your performance on race day. Pre-mounted tires, while they're great for those who don't have the time or the experience to mount their own, cost more than the do-it-yourself tires. The irony is that mounting your own tires is neither time-consuming nor a task requiring a great deal of experience. Few supplies are needed for mounting, and they're reasonably priced, so once the initial cost is absorbed, you'll be able to put your hard-

earned money to use elsewhere. I'm not saying you shouldn't buy mounted tires; I'm just offering an alternative.

**EQUIPMENT:** To mount and true your own tires, you'll need a set of tires in your choice of compound, a set of wheels to fit your car, cement to glue the tires to the wheels, a tire horn, lacquer paint thinner and a tire-truing machine or some sandpaper.

Wheel choice is a matter of preference. Most available wheels are a standard white, but some manufacturers

have introduced their own lines of chrome-plated plastic wheels, which are just as light as the standard wheels and add a little flash to your car. Many of the white wheels can be permanently colored with fabric dye.

The next step is to choose some tires. Companies like BoLINK\*, Twinn-K\* and Parma\* sell tire "donuts" for  $\frac{1}{10}$ - and  $\frac{1}{12}$ -scale cars in the popular yellow, green and blue compounds. (Yellow is softer, for more traction; blue is harder, to allow for a little slippage.) If you have access to a tire-truing machine, such as the T&M Racing\* unit used here, or if you feel confident enough to smooth

them with a piece of sandpaper, buy a set of "un-trued donuts." These are rough-cut and still require some truing to

# TIRE MOUNTING AND TRUING



# TIME TO MAKE THE DONUTS!



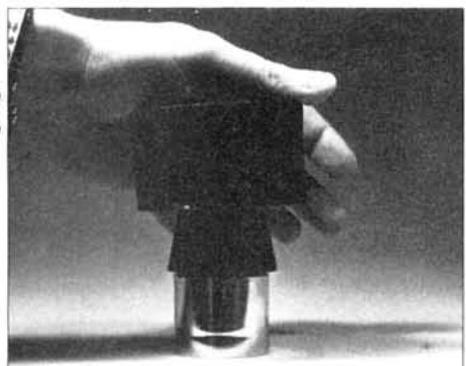
1. Coat wheel with Black Magic cement and let it set for about 10 minutes.



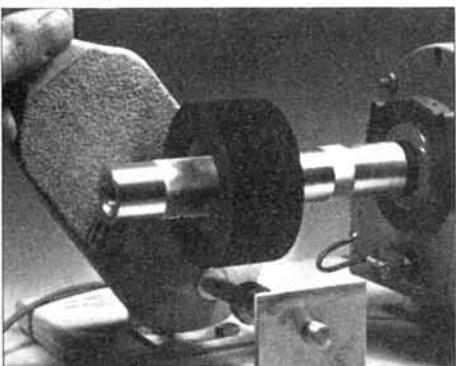
2. To ensure a good bond, also coat the inside of the donut and let it set for 10 minutes.



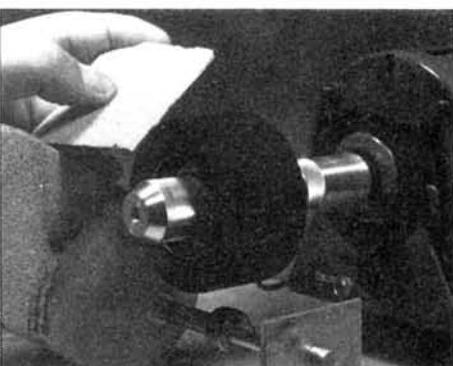
3. When the cement has had a chance to set, briefly dip the donut, wheel and tire horn into lacquer thinner to soften the cement so that you can mount the tire.



4. Place the tire horn on the wheel and push the donut down over the wheel.



5. After letting it sit overnight, mount the wheel on the truing machine and cut the tire to the desired diameter.

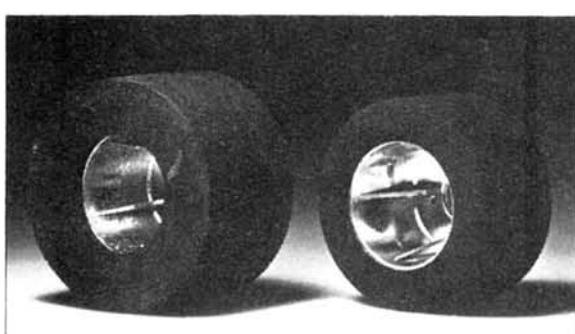


6. To get that scale look on your tire, use a piece of sandpaper to round the edges.

get rid of the high spots and excess sidewall material. "Pre-trued" tires are also available for some applications, but, unless these are mounted perfectly, they'll also have to be trued to keep them balanced. The cement used to mount the tires is Twinn-K's "Black Magic." There may be other cements available, but this is what I've been using since I started mounting tires, and I haven't had a problem with it yet.

Next on the shopping list is the ever-important tire horn. When mounting a tire, you'll see that the inside diameter of the tire is smaller than the diameter of the wheel. Using a tire horn (available from Kimbrough Products\*) lets you slide the tire or donut over the wheel in the same way as a shoe horn lets your foot slide into a shoe.

The last, and most important, piece of equipment is the tire-truing machine. This machine, from T&M Racing, will allow you to true a fresh set of tires or a damaged set of tires. It can

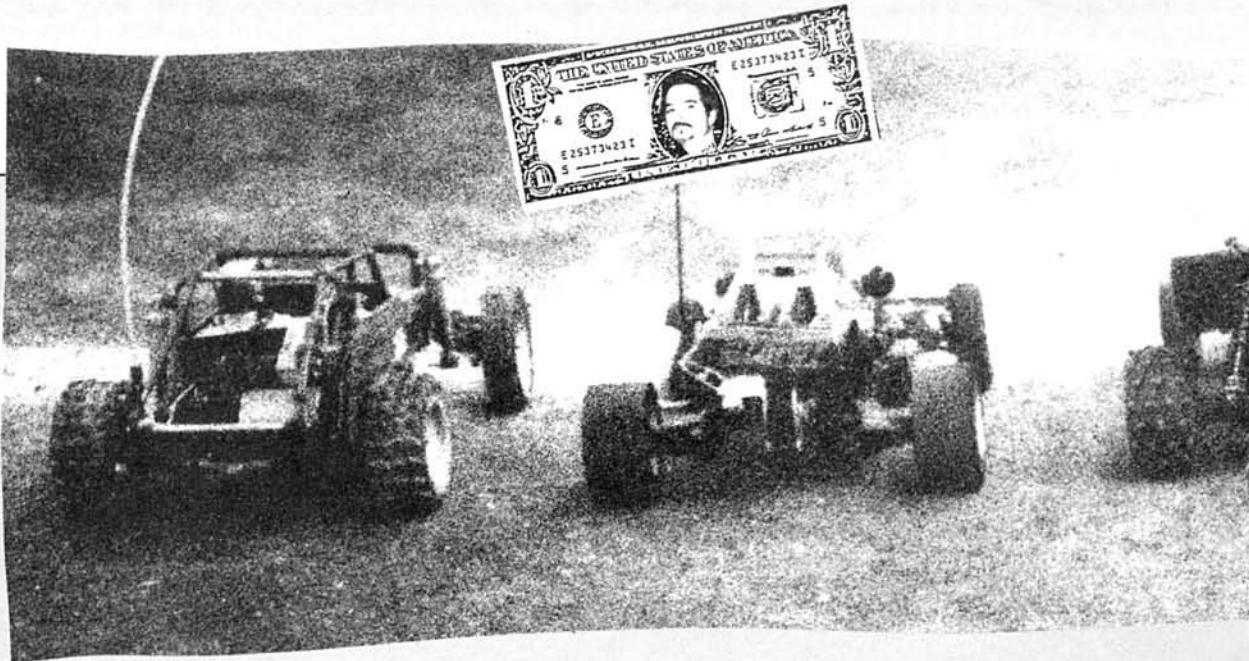


This before-and-after view shows what a difference a truing machine can make.

also be used to cut down a set of pre-mounted tires to lower the car's center of gravity and so reduce the amount of sidewall flex. A truing machine is something every serious on-road racing club should consider buying if it doesn't already have one. Mounting your own tires allows you to customize them and, in the long run, can save you a lot of money.

**MOUNTING:** To mount a set of tires, begin by coating each wheel and the inside of each tire with the Black Magic cement. Once this has been completed, let the cement dry for ten to fifteen minutes. Pour some lacquer thinner into a ceramic bowl (lacquer thinner melts plastic) and dip the wheels, tires and tire horn into the thinner. This may sound crazy, but don't worry. Go ahead and dunk 'em, but *don't leave them in the thinner*; the thinner is only used to

(Continued on page 95)



by DICK BRINTON

# THE BUDGET RACER

**W**HAT'S A BUDGET RACER? It's a car like the MRC/Tamiya\* Grasshopper, the Traxxas\* Cat, the Futaba\* FX 10, the Varicom\* Manx, the Kyosho\* Pegasus, the Royal Ripper—the list could go on and on. These cars are usually selected by the first-time buyer; they're inexpensive, easy to assemble and lots of fun to drive.

In this issue of *Radio Control Car Action*, we begin a series written especially for those who are interested in getting the most out of their low-cost off-road car.

We'll look at inexpensive R/C cars and at the modifications you can make *without* spending an arm and a leg. We'll work on refining suspension systems and drive trains. We'll find out which part exchanges work best, and we'll explore hop-ups that can be done without having access to a machine shop. Maintenance and troubleshooting will be included in this series. We'll also give information on the best driving techniques for the less expensive suspension systems, and we'll suggest setups for different kinds of tracks.

In short, we're going to keep up a steady flow of information to all who want maximum enjoyment of our hobby without spending their last dollars. If I'm talkin' your language, read on.

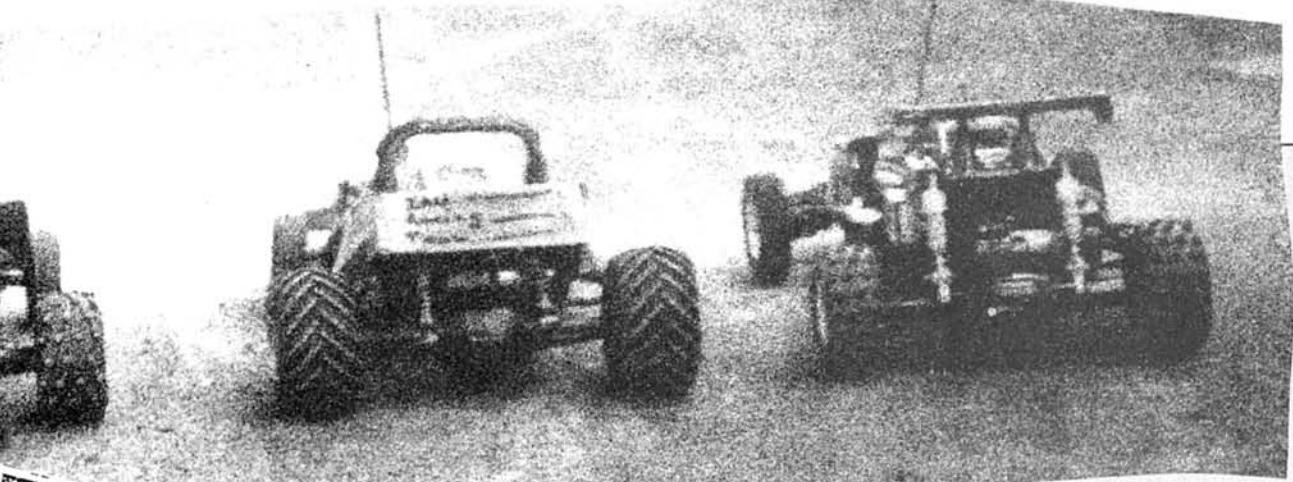
I've watched the R/C car hobby grow from an unremarkable beginning to become a popular worldwide hobby/sport that's enjoyable and challenging. There's off-road and on-road; oval, pavement and carpet; indoor and outdoor;  $\frac{1}{12}$ -scale to  $\frac{1}{4}$ -scale; electric-powered and fuel-powered; Formula 1 to monster trucks to drag cars—You name it; I'll bet someone, somewhere, has given it a try. (Anybody ever try hill climbs?)

There's something for everyone, and we need to continue to attract and accommodate newcomers.

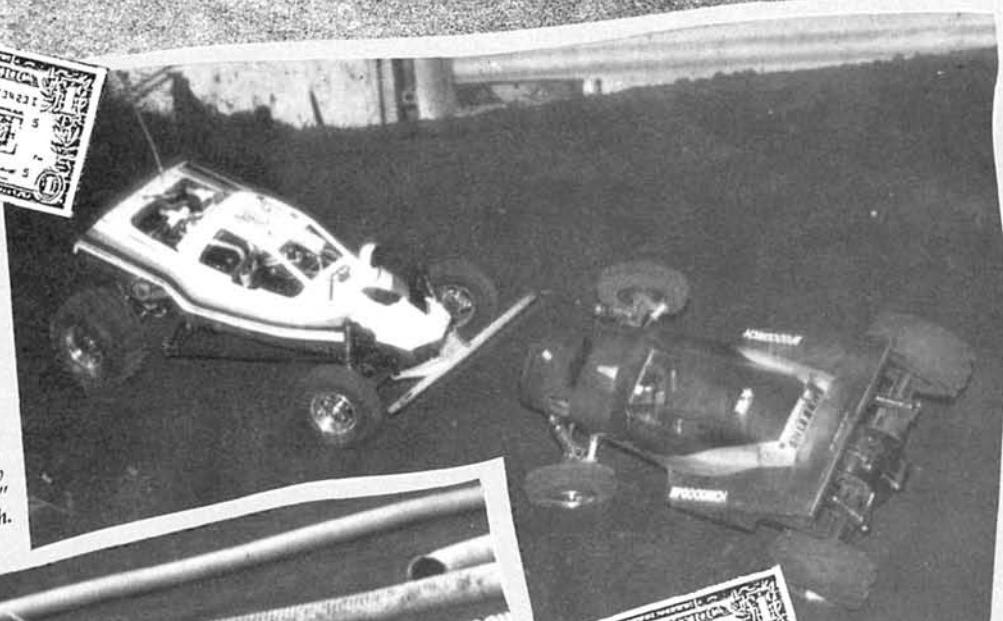
Yeah, I know the youngster with the new car keeps getting in the way of your Zowie, which was making Mach 2 down the front straight, but we were all newcomers at one point, and without



This view shows the Traxxas Cat taking the high line around a banked turn.



Right: With the Rockbuster making a desperate attempt to point itself in the right direction, the Hornet moves in for the kill. Below: Even on a low budget, this "Class II" car is flying high.



them the hobby will cease to grow.

It's simple economics. People start new hobbies and then lose interest, and when the number of people starting a hobby declines, there are soon fewer people involved, the hobby becomes the exclusive domain of a few diehards... and soon there's no more hobby! (Remember slot-car racing?)

With fewer potential buyers, there are fewer products available, as manufacturers go out of business or gear their operations toward products with wider appeal. Tracks close and hobby shops turn to other products and other hobbies.

For the R/C car hobby to continue, we must *all* welcome and encourage beginners.



Even the Rockbuster and the Grasshopper can bump and grind just like the pros.

The question I'm asked most is: "Can I have fun racing an inexpensive car, and still expect to be competitive?" Yes, if you're racing against other *budget* racers! That's all it takes to have an even chance. Sure, some drivers bring more

# THE BUDGET RACER



experience to a race, but as long as the cars are comparable, everyone has a chance to do well.

Here are some suggested rules for such racing events:

## STOCK CLASS I

### Off-Road or Dirt-Oval

- This class should be limited to drivers with less than one full year of competition experience. No sponsored drivers or cars allowed.
- Limited to 2WD cars that list for less than \$150. I'm referring to the manufacturer's advertised list price, and not to the discount price that most cars are available for.

## HEAD-TO-HEAD COMPETITION DOESN'T HAVE TO BE EXPENSIVE.

- Cars are to be box stock, except for tire/wheel changes, gear ratio changes (if provided by original manufacturer) and minor suspension modifications to beef up or improve suspension performance (no spring/damper unit changes).
- Motors must be stock, as provided by the car's manufacturer.
- Speed controller may be changed to wire-wound, but electronic speed controllers are prohibited.
- Races should be four minutes to five minutes long.
- One-tenth-scale electric only.

These rules may also be used for monster truck racing.

## STOCK CLASS II

### Off-Road or Dirt-Oval

- No sponsored drivers or cars allowed.
- Limited to 2WD cars that list for less than \$150.
- Cars can be modified with changes to suspension (including spring/damper units), tires, wheels and gear ratios. Stock manufacturer's chassis required.
- Any stock-class motor allowed.
- Speed controller may be changed to wire-wound, but electronic speed controllers are prohibited.
- Races are to be four minutes to five minutes long.
- One-tenth-scale electric only.

These rules may also be used for monster truck racing. All other non-conflicting ROAR or ORRCA rules apply.

The emphasis in both classes is on keeping costs down while providing racing opportunities for all drivers. A beginner can go from Class I to Class II racing with the same car, and may fine-tune his car's suspension and tires in both classes. In this way, the person who works at improving his car and his driving skills will end up at the head of the pack—without having to build and maintain a high-cost car.

In my first season of R/C car racing, I drove a Doberman, which was manufactured by Playtron and imported by United Model Products\*. Most of you have probably never even

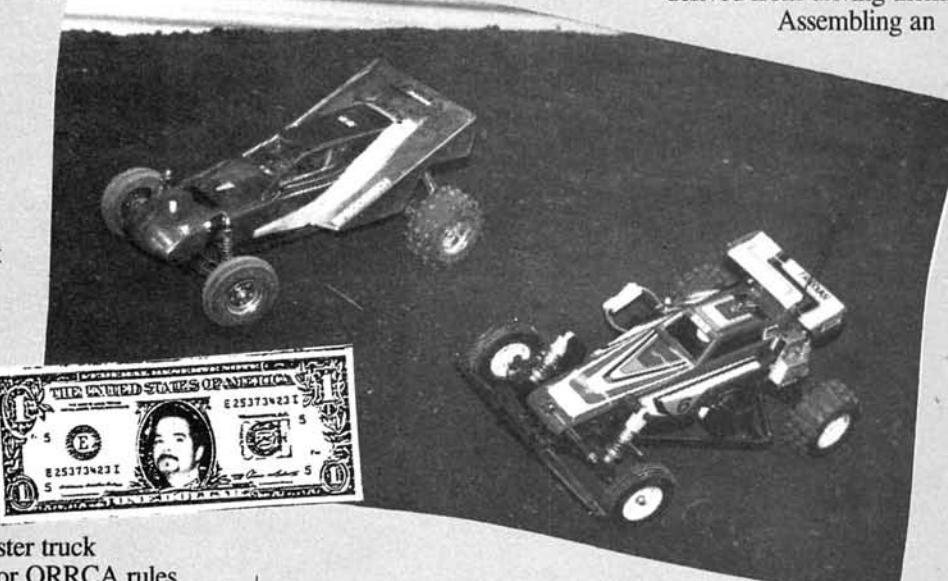
heard of this car, but I got it working well enough to place second one season in a class that regularly had over 20 entrants. We raced Class II rules, as set up by Little City Hobbies in Reno, NV. It was a blast, and every newcomer had a chance to race.

Last week, I talked with Chuck Ellis, the owner and operator of Chuck's R/C Hobbies in Placerville, CA. He has opened a neat indoor off-road and oval-dirt raceway that uses sifted(!) loam for the track surface—absolutely no rocks. (Pictures for this article were shot at Chuck's track.) Chuck is very interested in holding races for newcomers and budget racers. If your local track doesn't have racing for classes

similar to the classes I suggested, show this article to the track owner. You'll be glad you did, and so will he. If the track is run by a local club, collect signatures from those of your friends who want these classes, and present the signatures and this article to the directors of the club. The track owners and club directors I've talked to are all in favor of the budget classes. When given a chance, these two classes are great fun and draw the largest number of entrants.

To parents who are considering buying an R/C car for their sons or daughters: Since R/C cars aren't toys, they have many qualities other than the excitement and fun derived from driving them.

Assembling an



R/C car provides

challenges as well as enjoyment.

Your youngsters will learn some mechanical skills and some safe, simple electrical skills. They'll learn to translate what they read in instruction books into results, and when the car is finished, there's a real sense of accomplishment.

If your son or daughter decides to race the car, you'll notice an improvement in eye-hand coordination, self-control and self-discipline. In addition, he or she will learn the responsibilities of vehicle maintenance.

(Continued on page 51)

TAMIYA

# S O N I C FIGHTER

by RICH HEMSTREET

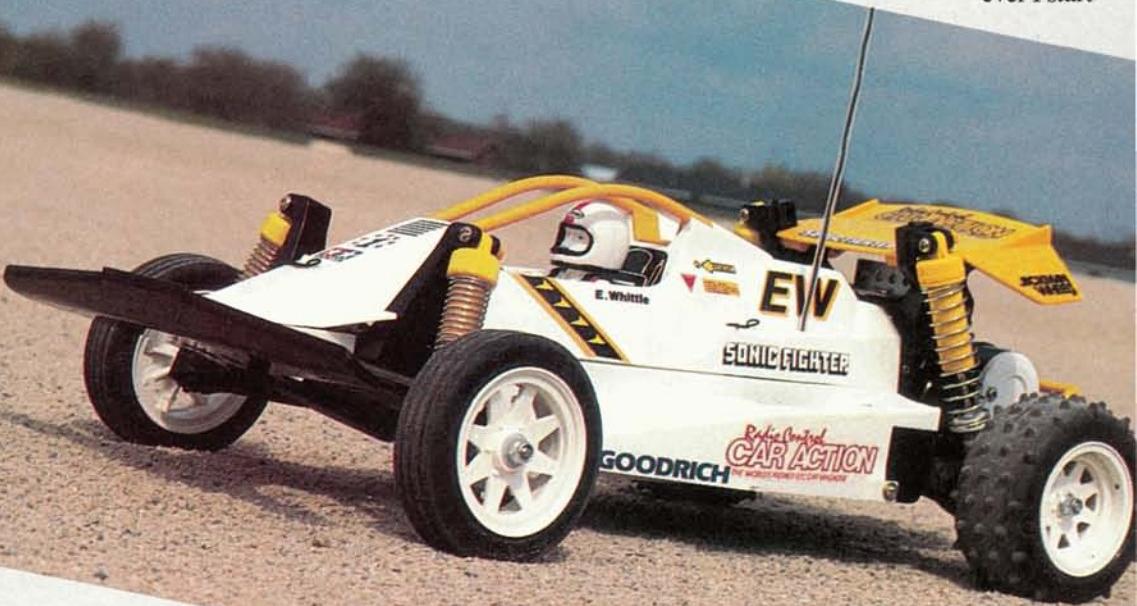
## OIL-FILLED SHOCKS GIVE THIS ENTRY-LEVEL OFF-ROADER MORE STRIKING POWER.

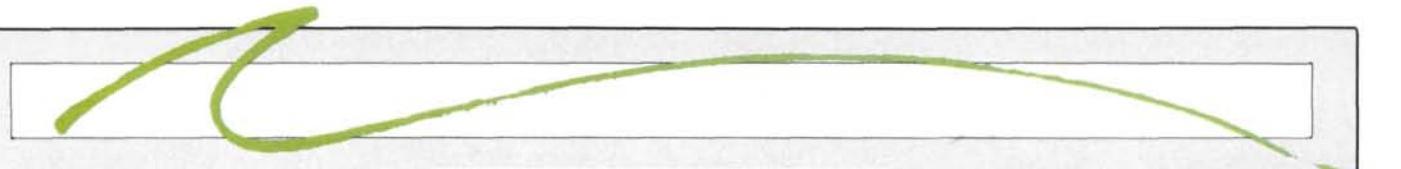
IT'S A BIRD; no, it's a plane; no, it's Darth Vader's ride—a Sonic Fighter! Tamiya\*, the largest off-road manufacturer, has added yet another car to its line-up. The Sonic Fighter is an entry-level,  $\frac{1}{10}$ -scale, 2WD off-road racer, and it's designed to look like a cross between an X-wing fighter and a dune buggy.

The Sonic Fighter features fully independent suspension with oil-filled, coil-over shocks, and the rear suspension has a semi-trailing-arm system. The kit is complete, except for a 2-channel radio system and a 7.2V battery pack. If your radio system has a BEC (battery eliminator circuit), you're all set; if not, you'll have to install a dropping diode in the wire harness to protect the receiver.

A pre-wired, three-step forward-and-reverse speed control is included, and this makes it easy for a beginner to build the Sonic Fighter. The chassis is an open-box style that permits easy access to the entire radio system.

ASSEMBLY: Whenever I start



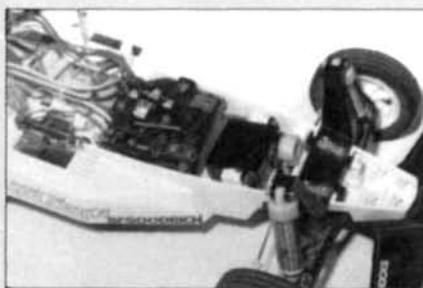


to assemble a Tamiya kit, I'm overwhelmed by the vast number of parts and screws; the Sonic Fighter was no exception. To build the car properly, take it slowly, and follow the instruction book step by step. I used a Kyosho\* Pulsar Pro 2000 radio system, and installed a dropping diode between the speed control and the on/off switch.

In Step 3, I strongly suggest that you add two extra 3x8mm screws when you attach the speed-control

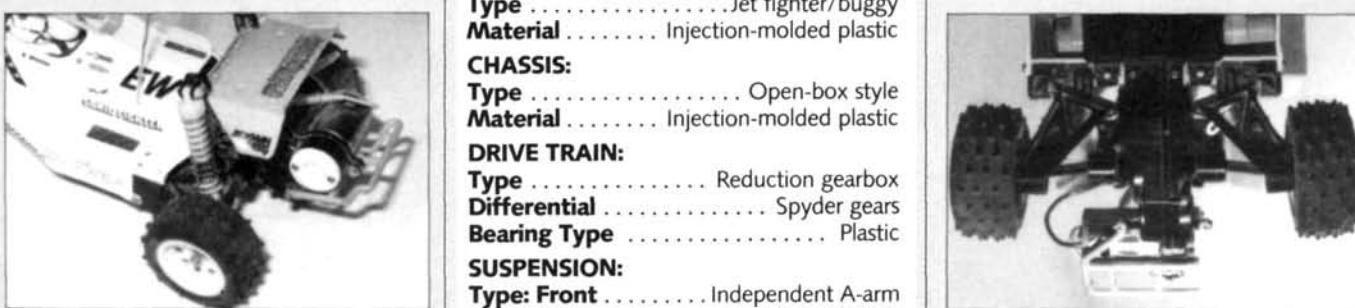


Above: Large oil-filled shocks help keep the rear knobby tires on the ground.  
Below: Open-box chassis design provides easy access to the radio system.

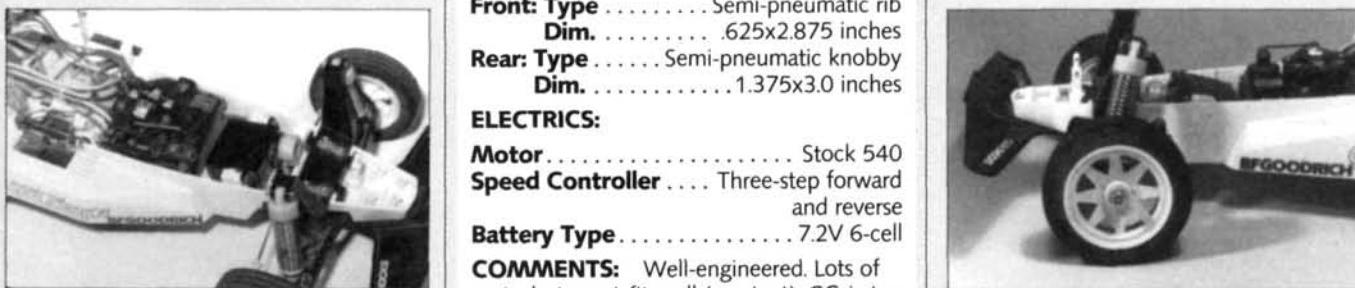


servo to its bracket. Using only two screws (as shown) allows the servo to pivot and twist as the servo arm moves, and radio equipment shouldn't move around.

If possible, buy three 5x11 ball bearings and one 5x8 ball bearing before you assemble the gearbox in Steps 18 through 20. Ball bearings provide better performance and reliability than the plastic and metal bushings in the kit. While it would be nice to have a full ball-bearing kit to install, it's most important to at least have them in the gearbox. When the car has been built, it's really difficult to disassemble the gearbox to install ball bearings.



Above: The rear suspension on the Sonic Fighter features semi-trailing arms.  
Below: Lightweight one-piece wheels are used front and rear for a lower overall weight.



## MRC/TAMIYA SONIC FIGHTER

**Type** ..... Off-road 2WD  
**Scale** ..... 1/10

### DIMENSIONS

**Overall Length** ..... 17.25 inches  
**Width** ..... 9.3125 inches  
**Height** ..... 5.0 inches  
**Wheelbase** ..... 10.25 inches  
**Front Track** ..... 7.5 inches  
**Rear Track** ..... 7.75 inches  
**Weight (w/bat.)** ..... 3 lbs, 6 oz.

### BODY:

**Type** ..... Jet fighter/buggy  
**Material** ..... Injection-molded plastic

### CHASSIS:

**Type** ..... Open-box style  
**Material** ..... Injection-molded plastic

### DRIVE TRAIN:

**Type** ..... Reduction gearbox  
**Differential** ..... Spyder gears  
**Bearing Type** ..... Plastic

### SUSPENSION:

**Type: Front** ..... Independent A-arm  
**Rear** ..... Independent semi-trailing arm  
**Dampening (f/r)** ..... Oil-filled coil-over shocks

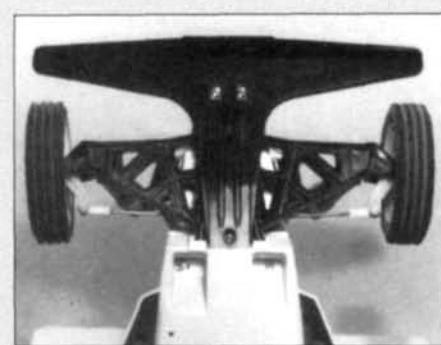
### TIRES:

**Front: Type** ..... Semi-pneumatic rib  
**Dim.** ..... 625x2.875 inches  
**Rear: Type** ..... Semi-pneumatic knobby  
**Dim.** ..... 1.375x3.0 inches

### ELECTRICS:

**Motor** ..... Stock 540  
**Speed Controller** ..... Three-step forward and reverse  
**Battery Type** ..... 7.2V 6-cell

**COMMENTS:** Well-engineered. Lots of parts, but most fit well (see text). CG is too high, but the car is still very stable in most situations. A good entry-level vehicle that only really needs the addition of ball bearings.

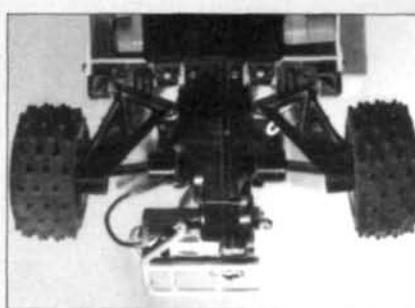


The front suspension utilizes the ever-popular A-arm. Note heavy-duty bumper to protect front end from damage.

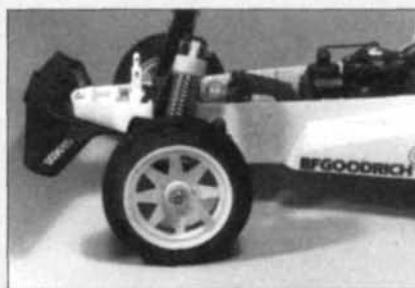
In Step 18, make sure that the counter gear spins freely on its shaft.

If either bearing is slightly angled, the gear will bind on the shaft. This is the key to a smoothly operating gearbox. I use Vaseline petroleum jelly to lubricate the nylon gears and plastic bearings. The kit includes a tube of grease, but the Vaseline is a lot nicer to work with.

At Step 25, you connect the motor to the speed controller. For some unfathomable reason, Tamiya



Above: The rear suspension on the Sonic Fighter features semi-trailing arms.  
Below: Lightweight one-piece wheels are used front and rear for a lower overall weight.



has decided to use yellow-and-green-coated wires on the speed controller and for the motor leads. As well as this, you have to connect the yellow controller wire to the green motor lead and vice versa on the other set of wires. It would be less confusing if the leads and wires were all coated in the standard red-for-positive and black-for-negative fashion. This would make it easier to connect optional motors without guesswork. All kit manufacturers should teach entry-level R/C addicts to connect wires that are the same color. "Green to green and yellow to yellow" may help a modeller learn

(Continued on page 98)

# Troubleshooting

by FRED MURPHY

"How To Beat The System."

**Y**OUR FIRST QUALIFIER is over, and your car is in the pits with front-end damage. The second round is complete, and you feel that your speed control isn't giving you full power. We all know the rules, and I know that nobody breaks the rules, so how do you make those pit adjustments to your car with your radio in impound? I don't know about you, but my method has been the "close-enough" method, and this can make a difference between wanting to pack up and go home or winning the race.

How would you like to make these pit adjustments without the use of your radio? At a recent R/C trade show, I met Cal Orr of Custom Electronics\*, and he asked me the same question. Of course, my answer was that I'd love to make these adjustments in the pits and not at the starting line, and that the "close-enough" method has worked well only about 50 percent of the time. To my delight, Custom Electronics has a way of raising

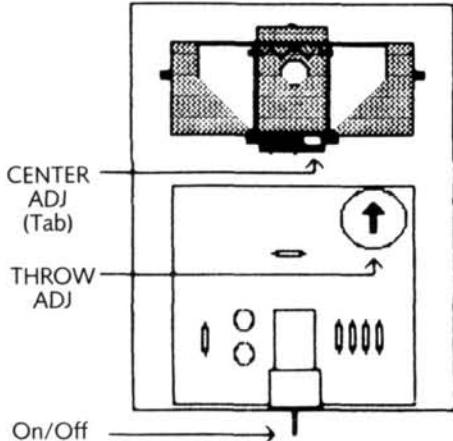


The Servo Driver is available in two varieties: for your speed control (left) and for your steering in the JS model (right).

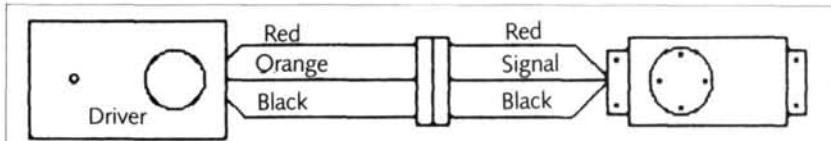
that percentage to 100—without the use of your car's radio!

A servo driver will allow you to directly control a servo or an electronic speed control without the use of a radio. R/C airplane fliers have been using them for a year, so why can't we car drivers? Operating under its own power source, the servo driver simulates the radio's function. That power source is a set of four 1½V

knob, allowing an adjustment of your electronic speed control from a neutral position to full power. The key to the proper function of both units is that you set them to match your radio system. On the JS model, you can make two internal adjustments: center and throw. This will allow you to adjust the output of this Driver to your transmitter. The Standard, or "dial," Servo Driver is equipped with a



The JS Servo Driver will allow you to match your radio's output by using the unit's internal center and throw adjustment.



Proper connector installation is important to prevent damage to the servo and Servo-Driver. For trouble-free installation, check the color code on your radio system or order the Servo Driver with the connector of your choice.

N-cell batteries that is readily available at any electronics supplier, like Radio Shack. Custom Electronics has an optional "Ni-cad Kit" that includes four N-cell Ni-Cd batteries, a charge harness and a charger.

As for the units themselves, they're available in two versions. The Servo Driver JS is a spring-loaded joystick that responds much like the sticks on your transmitter. The other version is the Standard Servo Driver that has a rotating

single trim pot that will enable you to match its output to your radio.

Setting up the JS Servo Driver involves removing four small cover-screws to install the four N-cells; radio-matching adjustments can be made at this point. The center adjustment is a slide tab, just like the trim control on your transmitter. When you've centered the servo in the car using your transmitter, turn off the car

(Continued on page 42)

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Height: 10 1/2"  
Width: 10"  
Scale: 1/10



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## TROUBLESHOOTING

and the radio, unplug the servo from the radio receiver and plug it into the Servo Driver. The connector on the Servo Driver is available for any radio; when ordering the Driver, just specify the type of radio connector your system has. Now turn the Driver on, and using the slide tab inside the JS Driver, set the servo to match the position that your transmitter has placed it in. If an adjustment has to be made to the throw pot in the Driver or turning radius of the servo you're setting, make sure you readjust the center point after you've finished.

If your car is equipped with a speed control that has reverse, you can use the JS model for adjusting it, as well as for adjusting any steering functions. If your car is equipped with a speed control that has no reverse, the Standard Servo Drive will enable you to make quick and easy adjustments to it. When the Driver initially turned on, this will be the speed control's neutral point, or idle, as you have a gas car. By rotating the driver's knob clockwise, power will increase as the knob is turned. Set up this Driver in the same way as the JS model is adjusted with one exception. The only adjustment is to the internal trim pot to fine-tune your speed control's neutral point. If you set up the Driver's trim pot to have the neutral point at a small distance past the Driver's "On" position, this will allow you to check the electronic speed control's braking function.

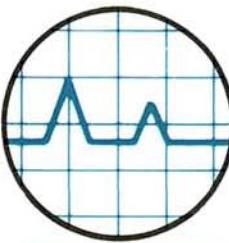
The frustration of trying to repair damaged steering, or having to make speed-control adjustments in the pits when your radio is in impound, is considerable. My days of using the "close-enough" method have come to an end, along with last-minute adjustments at the starting line while everyone yells, or the race starts without me because my car's steering is messed up, and the trim control on my radio won't make enough adjustment...!

Now that I've discovered the Servo Drivers from Custom Electronics, they'll always be included in my field-box. Don't let an impounded radio ruin your day's racing; be prepared and fully adjusted before you leave the pits, because even if you aren't, I assure you that the winners will be! Good luck and happy motoring!

\*Here is the address of the company featured in this article:

Custom Electronics, 8870 Hamilton St., Aliso Loma, CA 91701.

# SCOPING OUT



U  
T

BY RUDY MEYER

## We Check Out The Highly Efficient Robart HQ-505.

**S**COPING OUT: As we're committed to bringing you the most up-to-date technical information on R/C products, Radio Control Car Action now has Rudy Meyer, an accomplished electrical engineer, to test the newest high-tech electronic equipment that's flooding the R/C market. "Scoping Out" is a two-part test in which a product is first subjected to extensive bench testing using sophisticated equipment and then actually used in the field. These tests will allow us to expose any ridiculous performance claims and, at the same time, provide R/C car enthusiasts with invaluable information on where they should put their money!

**C**ONTINUING OUR SERIES on controlling the elusive electron for optimum speed and control of your R/C model, "Scoping Out" evaluates another electronic speed controller.

The lab door opens and the switches are turned on. The power supply is energized, and the scope is warming up while the wires on the electronic throttle are "plugged in." The time has come to probe the latest controller on the testing block—the HQ-505 Electronic Throttle from Robart Manufacturing\*. The HQ-505 features the following:

- FET technology
- Built-in heat-sink
- Input and output (optically isolated)
- Proportional braking
- Large voltage range

Before I discuss the features, I'll clarify some terms used in this article. FET technology stands for "Field-Effect Transistor." This type of transistor has a very low "on" resistance; very little voltage will be dropped across the electronic throttle, and all of it will be supplied to the motor. The other term is "Optically Isolated Output." This means that there's no direct connection between the input line that goes to your receiver and the output that goes to your motor, so if anything goes wrong on the output, the throttle won't destroy your receiver.

Care must be taken when mounting and hooking up the HQ-505, because if the battery leads are reversed, the throttle will be rendered inoperable. The throttle can be



The Robart HQ-505 features adjustable neutral high speed and proportional brake. Unit comes with Futaba "J" connector and Tamiya-type battery plug.

used in all scale models, since the allowed input battery voltage ranges from 6 volts to 35 volts. The HQ-505 was tested using a Futaba transmitter and receiver, but it will work just as well on other models and can be purchased with the correct connector for the Airtronics, K-O Pro and Ace radios.

With the HQ-505 hooked up to the test equipment, the throttle was initialized to the radio using the neutral and range-adjustment potentiometers (pots). The initial adjustment was with the trigger/stick in its neutral position. For this initialization, you'll have 100 percent throttle and 100 percent braking. Depending on where you position the trigger/stick in its travel range, you can vary the

amount of braking applied (from 0 percent to 100 percent)

by adjusting the neutral pot. For maximum rpm of the motor, the range pot is adjusted with the trigger/stick at its maximum position. With this adjustment, the trigger/stick will give you linear acceleration. In adjusting the range pot beyond its optimum position, you'll get a faster acceleration rate for less trigger/stick movement. Adjust the range pot below its optimum position, and you're capable of slowing your model down, so a beginner can learn how to steer the car without going out of control.

While performing the tests on this electronic throttle, we had two problems: The insulated screwdriver supplied with the throttle didn't fit in the slots of the neutral and the range pots. Also, it was very difficult to find the slots in the pots because of their location.

The Robart HQ-505 Electronic Throttle is sophisticated enough for professional use, but its ease of operation and adjustment make it ideal for the amateur model racer. The HQ-505 was one of two speed controllers tested for standard operation. The other controller (from an earlier issue) was the Pro Zeta programmable.

We'll be testing several more speed controllers, and in one of the issues, we'll pit the controllers against one another to see if they live up to their maximum specifications and advertisers' claims. Look for our chart of results in an upcoming issue.

\*Here's the address of the company featured in this article:  
Robart, P.O. Box 1247, 310 N. 5th St., St. Charles, IL 60174. ■

I WAS RECENTLY privileged to get close to the stars and cars of professional stock-car racing. To share this experience with the rest of you, I took photographs, and I hope you'll find them useful.

As the selection of Lexan bodies increases, and the bodies improve in quality, realistic detailing to compliment these products and to impress the judges becomes more necessary. There are many areas on a

# DETAILS, DETAILS

*They can make or break your model.*



Right-side windows are mounted with screws, quarter-turn fasteners, clips, or any combination of these. Detailing is easily accomplished with MonoKote trim sheets or striping tape. Note the addition of side scoops to duct air into the cockpit.



Gas filler "dry-break" opening is used in this location on all cars for oval tracks. Note small vent pipe sticking out at the back of the body under the spoiler.



by ERIC GOLDSCHRAFE

stock-car body that may be given some extra finesse. We can use many of the techniques used on full-size cars, even though our model bodies are sleek one-piece moldings and full-size cars aren't.

A full-size stock car must have a 110-inch wheelbase, a 59.5-inch track, a 50.5-inch minimum height and a 3.5-inch minimum running clearance. The car must weigh at least 3,500 pounds, and it must comply with lengthy regulations on mechanics and safety that are meaningless to R/C builders. However, these regulations establish the parameters within which the full-size cars are assembled, and they must still fit closely within body-contour templates that are made using production models. The cars all have the same design of chassis and roll-cage structure, but teams usually put on much of their own sheet metal and internal fittings. Variations in team techniques make the details of each race car different, and their techniques can also be used to create a really well-detailed model, even though you only have the outside of the body to play with.

Full-size cars usually have carefully fitted sheet metal, with most seams (including doors) filled in. For efficient aerodynamics, the bumpers and valance panels also fit closely to the body, and as our model Lexan bodies are molded in one smooth piece, their overall appearance is accurate. A closer look at some typical cars revealed some easily duplicated details that will put your car into the "concourse" category quite quickly.

Until recently, stock cars had to run with all the side-window glass removed, but air tended to get inside the car in high-speed spins, and this lifted the car off the track. On the superspeedways, all glass, except the driver's side window, must be in place, and the

(Continued on page 48)



## WHY THE HQ 505?

The new ROBART HQ 505 Electronic Throttle has been designed to provide electric powered Radio Control enthusiasts the utmost in advanced electronic throttling for R/C cars, trucks, dragsters and R/C gliders using folding props.

The HQ 505 Electronic Throttle is an advanced proportional speed control with proportional brake and high speed and neutral adjustments. It is optically coupled for glitch-free radio operation, weighs less than 1.9 ounces, and has an efficiency rating of better than 98% which means it delivers more power to your motor.

Unlike the "other guys" who make unbelievable performance claims about their controllers which are limited to a mere 10 volts of input power, the ROBART HQ 505 can handle from 7.2 volt (6-cell) up to 35 volt (24-cell) battery packs and all the amperage those packs can deliver! And, the HQ 505 does it without fuses! Each HQ 505 is equipped with a Futaba "J" receiver connector and a Tamiya type battery connector.

All ROBART HQ Electronic Throttles are backed by our exclusive limited lifetime warranty. So whether you're driving off-road, on road, truck-pulling, drag racing or just cruising around, you owe it to yourself to check out the new electronic throttles that leave the others smokin'! ROBART HQ Electronic Throttles are available from your favorite Radio Control hobby supplier now. If not, write ROBART today for information.

### HQ 505 SPECIFICATIONS:

Type:	Advanced Metal Technology
Voltage:	7.2-35 Volts DC
Amperage Capacity:	Up to 120 Amps
Size:	1.25 x 2.25 x .625 inches
Weight:	1.9 ounces
Power Dissipation:	600-1000 watts
Voltage Drop:	.07 @ 10 Amps
Optically Coupled	
Adjustable Neutral, High Speed and Proportional Brake	

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**robart**  
P.O. Box 1247, St. Charles, IL 60174

## DETAILS, DETAILS



On most stock cars there's an opening at the base of the windshield to draw air in for the engine.

openings are covered with a safety net. All this not only gives us a legitimate reason to leave in the windows, but it also gives us a major surface-detailing opportunity. Since, on the full-size cars, there are no real doors or inside double panels, the side windows are mounted in heavy frames and screwed, clipped, or riveted into place. We can use strips of appropriately colored (usually black) striping tape or MonoKote\* Trim Sheet to duplicate the appearance of this mounting technique, and any fasteners may be picked out with silver or aluminum paint dots.

Full-scale front and rear windshields are mounted in similar frameworks and are designed to be changed quickly. I've seen a hot pit crew change a windshield in less than half a minute! For us, the same tape or MonoKote will work well here, but remember the support and hold-down strips on the rear glass and the inside support bars behind the windshield. Some are blackened (probably to reduce reflection), but some of the rear hold-down strips are of a bright metal. The window moldings are generally much wider than stock-type parts, giving us reason to accent this detail.



Exhaust pipes exit in front of the rear wheels as shown, or there's one on each side, depending on header type.



Jacking point is at a break in the side molding, but it lacks the markings that help the jackman find the point quickly during a pit stop.

All stock cars draw carburetor air in through an opening in the cowl at the base of the windshield. A close look at a photo of the full-size car you're modeling may show this as a well-camouflaged opening behind the hood, a neatly screened duct, or a comparatively crude hole leading to the air-cleaner box. Some black MonoKote or paint might do the trick here, or perhaps a small piece of neatly applied artists' self-stick screening material will create the proper effect. Try it—you can always remove it if you don't like it!

Further forward along the hood there are usually four evenly spaced hood pins along the leading edge. Duplicate these details with dots of silver or chrome MonoKote (made with a hole-puncher) covered with McAllister\* hood-pin decals.

McAllister decal sheets also include realistic window nets in a variety of colors, but you'll have to add chrome MonoKote to the upper front of the net to simulate the

(Continued on page 112)

## BUDGET RACER

(Continued from page 34)

If your youngster decides to try the beginners' racing class, he or she will enjoy competing in an exciting environment that's less stressful than most competitive team sports. A newcomer progresses at his or her own rate, learning to think through problems, how to experiment with handling adjustments and how to develop a simple regimen to assess personal progress.

Enjoying this hobby doesn't require a high level of skill; the skills and knowledge develop while having fun. What could be healthier? Give budget racing a try.

Next month: suspension and set-up tips. See you at the track?

\*Here are the addresses of the companies mentioned in this article:

MRC/Tamiya, 2500 Woodbridge Ave., Edison, NJ 08817.

Traxxas Corp., 12150 Shiloh Rd. #120, Dallas, TX 75228.

Futaba Corp. of America, 555 W. Victoria St., Compton, CA 90220.

Varicom Industries, 18480 Bandelier Cir., Fountain Valley, CA 92728.

Kyosho; distributed by Great Planes Model Distributors, P.O. Box 4021, Champaign, IL

61820.

Royal Products Corp., 790 W. Tennessee Ave., Denver, CO 80223.

United Model Products, 301 Holbrook Dr., Wheeling, IL 60090. ■

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### VEHICLE\*

(1,4)

(2)

(2, 3, 4)

(2)

(1, 2)

### ITEM

• Dual-wheel adapter kit

• Magnum front bumper

• Square twin-bar rear bumper w/ball hitch

• Front and rear square twin skid bars

• Side bodyguards

### VEHICLE\*

(1, 2, 3, 4)

(1, 2, 3)

(1, 2, 4)

(3)

(universal)

### ITEM

• Diamond-shaped bed covers

• Eliminator roll bars

• Racing wheel inserts

• Bug shields

• Diamond-shaped step plates

• Cheater fuelie hood stacks

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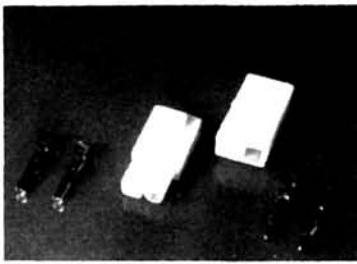
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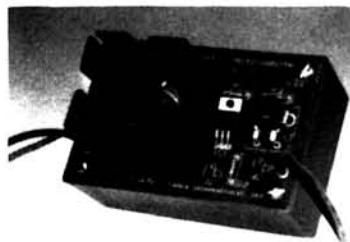
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## TRINITY SHOOTOUT

(Continued from page 14)

Now for the A Main. The line-up of ten cars looked like this:

Driver	Vehicle
Craig Bowring	Lucas
Rusty Husband	Associated* 12L

Ron Rosetti	Losi* Street Weapon
Jeff Abrams	Delta* T-12
Frank Killam	TRC*
Paul Nadeau	Outlaw 12-E
Jack Johnson	Losi Street Weapon
Louis LeBlanc	Associated 12L
Steve Hickman	Delta T-12
Boyd Gaebel	TRC Pro-12

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At the lowering of the green flag, a fairly clean start saw Craig Bowring ahead of the pack. Craig goofed when he missed the turn onto the straight; his car careened off the outer wall while the rest of the pack zipped by. Rusty Husband was an early leader and Frank Killam was second, followed by Ron Rosetti. Rusty won this race last year, and he intended to make it two in a row. Something happened to Killam's car, causing him to pull into pit row for the rest of the day. Steve Hickman jumped into second place and Jeff Abrams sat in third. And this was just the first two minutes!

At about this time, Abrams made Hickman nervous and they switched positions; Rusty was just running away. Top qualifier, Bowring, couldn't recover

(Continued on page 54)

## NEW FROM ADVANCE ENGINEERING **CUSTOM STREET RODS**

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## TRINITY SHOOTOUT

(Continued from page 52)

from his earlier collision, and he pulled off the track just shy of the three-minute mark. At the four-minute mark, Abrams was reeling-in the leader, cutting 14-

second laps compared to the 15-second laps of Rusty. Rusty felt the heat, and clipped the same marker that Bowring found coming onto the main straight, so

allowing Abrams to pass and dropping to second. After five minutes, Louis LeBlanc "did-in" Hickman and set his sights on Husband. It didn't take long, as Rusty clipped yet another marker and had to allow LeBlanc to pass. In fourth place was Ron Rossetti, who was eyeing Rusty with a view to passing as the others had. With under 45 seconds left, LeBlanc hit two markers, so allowing Husband back into second place, where he stayed till the end of the race. LeBlanc finished in third place and Paul Nadeau finished fourth.

In the Invitational races, Mike Lavacot was top gun in the B Main. He was followed by this line-up: Terry Rott, Shawn Ireland, Skip Starkey, Kent Claußen, N. Blacketter, Bob Scharnau, Chris Dasic, James Hoffman, and Fernando Valair.

Coming off the starting line, Mike Lavacot was the victim of a hole-shot by Terry Rott. Not for long, because by the time they hit the straight, Lavacot was firmly in control. Skip Starkey had jumped into the fray by lap 2 and was in second place. Starkey was hot and Lavacot let him by to burn up. By lap 4, the first three

(Continued on page 60)

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## JAMMIN' JAY HALSEY SHOWS HOLLYWOOD HOW IT'S DONE!

**I**F EVER THERE WAS an actor who exemplified the word "austere," it would have to be Clint Eastwood. From his early spaghetti Westerns, in which he solemnly drifted in from nowhere and, in a no-frills manner, sought out and blew away all the bad guys, to his later "Dirty Harry" roles, where only time and place have changed, he's a guy who gets the job done.

Well, the Dirty Harry image has emerged once again—in another celluloid spectacle called "Dead Pool." This new flick contains exciting segments that feature R/C cars. Director Buddy Van Horn insisted on the best R/C car driver to do all the R/C car stunt scenes. World Champion, Jammin' Jay Halsey, was selected for the job.

Jay and his father, Jim, spent a week and a half on location in San Francisco, filming all the R/C car action. In one scene, Clint Eastwood is speeding down one of the hilly San Francisco streets in his Olds Cutlass. This is the typical scene where a car goes speeding

RC 10 STARS IN NEW  
CLINT EASTWOOD MOVIE

# "DEAD POOL"

by LOUIS DeFRANCESCO and GENE HUSTINGS

downhill, comes to one of the cross streets, bounces over it with sparks flying everywhere, jumps off the ground and lands (with more sparks flying) halfway down the street.

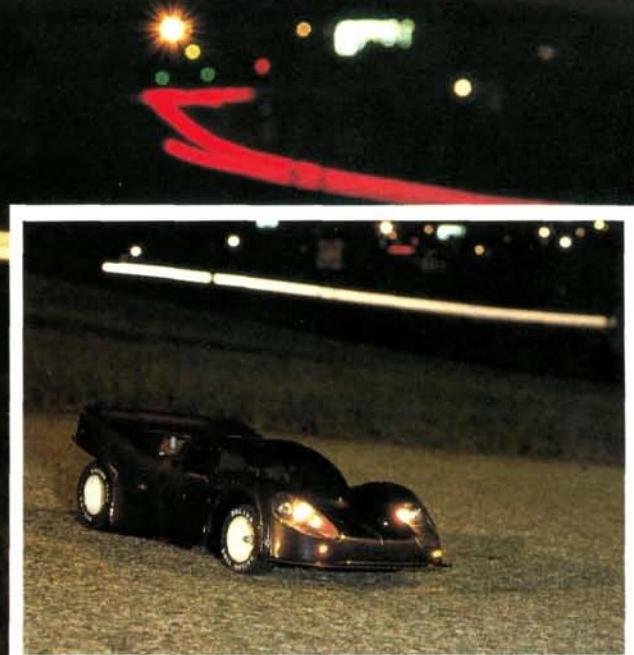
The director explained the scene to Jay, and asked him if he thought he could go fast enough with his RC 10 to keep up with Clint's Olds. Jay said he wasn't sure, but he'd try. Lowered for street racing, Jay's Associated RC 10 used all-black components, a black Parma Corvette body, trick aluminum wheels, foam-rubber tires and, of course, a Reedy motor on eight cells, geared really high.

At the top of the hill sat Clint in his Olds and Jay with his RC 10. The two cars were flagged off. Both cars took off, but Jay was in front and pulling away! They came to the jump area and Jay's

RC 10, already in the lead, out-jumped Clint's Olds and parked at the end of the street to wait for Clint! The director couldn't believe it! He told Jay that he was going too fast and making the Olds look slow! The director re-shot the scene so that Clint could be allowed to get to the bottom first!

In another scene, Clint's Olds and Jay's RC 10 were racing alongside each other. Jay was told to drive his bomb-laden RC 10, at high speed, underneath the Olds in an attempt to blow it up. A three-wheel motorcycle-type vehicle, with a special camera mounted at ground level, was used to follow the RC 10. The action scenes are incredible, but I don't want to give too much of the movie away. Don't miss it this summer! ■

# LIGHT SYSTEM



With headlights on, the Fast Lane Exotics GTP Porsche looks as if it's waiting for fuel during a pit stop in the 24 hours of Daytona.

## "Lights, Sound, Camera... **Action!**"

by T.J. LYN

DURING THE LONG warm summer days, we have more hours to spend on our R/C cars, and not all of these hours can be spent on the race track. As the sun sets, we usually call it quits for the day, but wouldn't it be great to extend your day's driving into the hours of darkness? Right, night driving! Why not?

Lighting systems aren't new; they've been around for some time, but I don't think any company has such an extensive line as RAM Radio Controlled Models\* (RAM) does. RAM offers a wide variety of lighting systems, from those for the largest R/C airplanes to those for the hottest R/C cars. Lighting systems are only one of the products in the RAM line. RAM also offers a complete line of electronic devices that add the most realistic functions to your car—the sound of a car's engine and a working horn system.

You don't have to be on the race track to have fun; adding some electronic components to your car can make non-racing hours very enjoyable. RAM lighting systems allow you to add the headlights, tail-lights, stoplights and even the turn-signal lights that will amaze everyone. All the systems are powered by readily

available 9V alkaline batteries. The headlights (part No. Red 19) are very bright, because they have focused reflectors attached to both headlight bulbs. The tail-lights and stoplights (part No. Red 20) comprise two stoplights with red lenses and a switching device that's simply wired to the car's motor. Whenever forward power is supplied, the bulbs will adjust from a bright glow in the neutral position to a dim glow when power is increased. This installation won't draw on the car's battery, so you won't shorten the running time of your car.

When the headlights and tail-lights are in place, turn-signal lights (part No. Red 21) may be added. This system has four bulbs and amber lenses, and it's used to duplicate scale vehicle operation. There are two micro-switches that control a flasher device, so either the left or the right signal is lit when the vehicle is maneuvered. The installation of the turn-light system is the most difficult to do, so careful planning here is vital. The micro-switches are activated by the steering linkage in your car. In my car, the BoLINK\* Round Tracker, there was sufficient room on the chassis for the micro-switches to be placed close enough to the servo saver so that it would make direct contact with the switch and activate the appropriate

signal light. However, with some steering setups, you might have to make mounting blocks for the switches or even attach wire actuating arms directly to the car's tie-rods. Once again, the key is good planning.

All the RAM lighting systems were neatly installed in the sharp-looking GTP Porsche Lexan body from Fast Lane Exotics\*. The headlight buckets are a great feature of this body. They are separate from the main body mold, but are included with the kit. They must be attached to the body, and I found that attaching them *after* painting produced the best results. By using Poly-Zap, a new product from Pacer Technologies\*, this installation was made quickly and without a trace of a join, even over a painted surface.

Count Christopher Productions\* of California has introduced a new concept of detailing—transfer pinstriping and graphics that can be easily placed on the outside or on the *inside* of your Lexan body. The best thing about the inside installation is that you can paint over the decals and so ensure that they'll last as long as the inside paint lasts. On the inside, they're protected from the collisions and scrapes that all outside detailing is subjected to. The Count says that this is only the beginning of this product line.

Now for the action part of the RAM product line. Whether you want the baja-buggy sound of a hot VW engine or the sharp, crisp sound of a V8, you can have both, complete with a horn to warn everyone that you're on the move. The V8 engine sound and horn (part No. Red 40) come with a compact two-inch speaker and a horn-switch. The engine-sound device will operate at voltages from 6 to 14.4 volts, so you can use any of the common Ni-Cd packs your car uses. Sound will increase as the voltage in the system increases. To accomplish this, your sound unit is attached to your car's motor via a positive and negative lead that's part of the unit. There are variations in motor construction, and if the engine sound doesn't respond properly, just reverse the red and black wires of the unit and it should operate as intended. The horn micro-switch is installed in much the same way as you install the turn-signal switches when you use a second servo for a speed control. If your car is equipped with an electronic speed control, you might have to live without the horn, unless your radio has third-channel capability.

Installation of the RAM electronic devices is very easy, and it's clearly shown and explained in the instruction sheet that comes with each component. Lights, sound and action—a few more ways of taking your interest and enjoyment in radio control one step further.

\*Here are the addresses of the companies mentioned in this article:

RAM Radio Controlled Models, 4735 N. Milwaukee Ave., Chicago, IL 60630.  
BoLINK, 420 Hosea Rd., Lawrenceville, GA 30245.  
Fast Lane Exotics, 9973 S.W. 155th St., Miami, FL 33127.  
Pacer Technology, 1600 Dell Ave., Campbell, CA 95008.  
Count Christopher Productions, P.O. Box 3766, Chico, CA 95927.

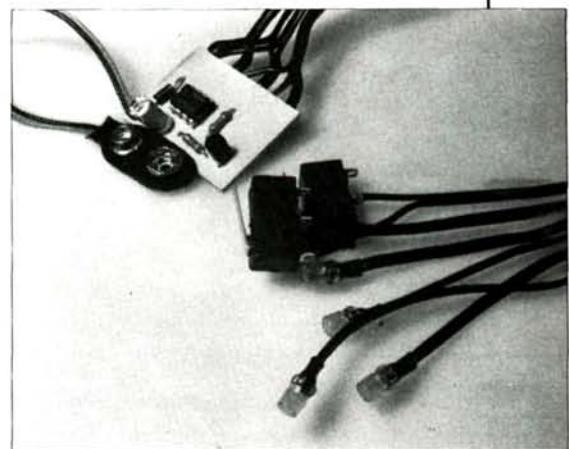
RAM headlights include focused reflectors that are important for night driving.



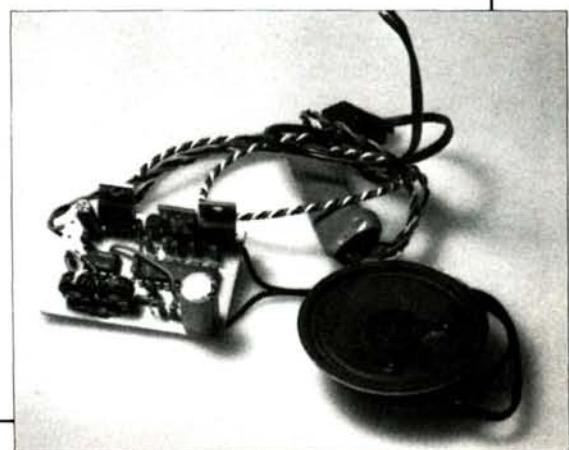
Part No. Red 20 is the tail-light and spotlight assembly that operates on its own 9V power supply.



The RAM turn-signal system uses two micro-switches that are activated by your car's steering linkage.



The V8 engine sound with horn will make everyone take notice. It's also available in a VW engine version.



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## TRINITY SHOOTOUT

(Continued from page 54)

were Starkey, Lavacot and Rott, and Clausen was in fourth. A short lap later, the top five cars mixed it up in the "S"-bends, with Clausen coming out almost untouched, leading Lavacot (second) and Shawn Ireland (third).

By the mid-point of the race, Clausen still held the lead, with Lavacot and Rott following him. The first two drivers pulled away from the pack, making their own race for two. Five minutes into the race, Lavacot caught Clausen and challenged the former World Champ to a duel, but Kent is an excellent driver under pressure, and he managed to hold on. A Kent/Lavacot collision in the bends put Lavacot down a while and Kent took off—not for long, though. Before the race, Kent was seen making critical calculations on gearing and tires compared to motor draw. It didn't pay off though, as his battery dumped at seven minutes down! Fifteen seconds later, Kent let everybody pass him, as his car's batteries were depleted. In the end, Lavacot took first place; Rott, second place; and Ireland came in third.

Next, the A Main, with the fastest drivers in  $\frac{1}{12}$ -scale waiting to jump. Here's the line-up:

(Continued on page 62)

## MINI METAL **MONSTER TRUCK** CONVERSION **KITS**

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## TRINITY SHOOTOUT

(Continued from page 60)

Driver	Vehicle
Bob Light	TRC
Joel Johnson	Associated 12L

Gil Losi Jr.	Losi Street Machine
Andy Comrie	Associated 12L
Dave Hoeckler	TRC
Tony Neisinger	Associated 12L

Randy Hunter	Delta
Gary Kyes	Losi Street Machine
Kevin Mercandante	Associated 12L
Tyree Phillips	Dunmore

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When the flag dropped, Bob Light was the first one out, with RCCA's own Joel Johnson in second and Gil Losi in third. Neisinger was working his way up quickly through the field, while Light suffered a roll-over at 1½ minutes down. Johnson then inherited first, with Randy Hunter in third. Actually, there were five cars battling it out for second: Mercandante, Hunter, Losi, Hoeckler and Neisinger. As the battle for second place raged, Joel, out front, was virtually forgotten. Hunter clipped Mercandante, and Hoeckler plowed right in, letting Losi and Neisinger go past. Losi and Tony went at it for some time, with Tony losing out to some jam-car techniques by Losi, but he bounced back several times to challenge and challenge again.

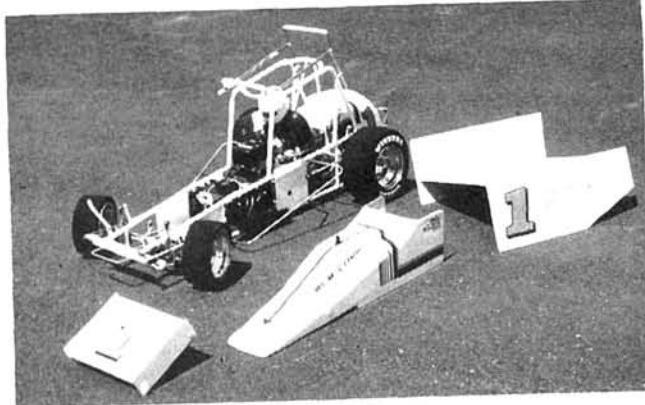
At 5:30 down, Neisinger put in 13-second laps in his effort to catch Losi and Johnson. Still, Johnson was forgotten out front. Neisinger put the squeeze on Losi. One minute left in the race, and things

(Continued on page 66)

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# SUPER SPORT PREVIEW

CONVERT YOUR RC 10  
TO AN OPEN-WHEEL  
ASHPHALT ANIMAL!



by STAFF

ONE OF THE most up-and-coming forms of 1/10-scale on-road racing is open-wheel. Open-wheel racers are fashioned after the super modifieds, midgets and the ever-popular Indy car.

Advance Engineering\* has just introduced a new Super Sport Conversion for the RC 10 that will transform your off-road racer into an open-wheel Indy car.

The conversion starts with the stock RC 10 chassis and suspension

components. To lower the car, a pair of spacer blocks are included, and these are mounted under the front and rear suspension arms. Also included are new shock mounts that will bring the front and rear shocks down to a horizontal position. This will allow you to mount the Indy-type body onto the chassis without having unsightly shocks standing out vertically from the body. After you've added a set of Advance wheels and Advance foam or rubber tires, you're ready to go!

In the October issue of *Radio Control*



Top: Before burning up the track at last year's Pocono 500, crew members signify that their cars are started and ready.

Above: Advance Engineering's Super Sport conversion brings open-wheel racing to R/C.

*Car Action*, we'll run an Indy Special. This will feature the Advance Super Sport conversion, a host of other open-wheel racers and other items to whet the appetites of you open-wheel maniacs. We'll also cover the Indy 500 and show photos of your favorite Indy drivers and their cars.

Keep your eyes peeled for some open-wheel madness!

\*Here is the address of the company featured in this article:

Advance Engineering, P.O. box 766, Woodland Park, CO 80866.

## TRINITY SHOOTOUT

(Continued from page 62)

looked pretty settled, except for the battle for second. About 7½ minutes down, someone finally remembered Johnson just in time to notice he was dumping his

battery! Joel was in real trouble! That left Losi and Tony only a straightaway behind, and by the time Joel hit the back straight for his last lap, Losi and Tony were just ten feet behind him. Joel drove into the

sweeper, only to have two cars on his rear bumper. As Joel took the last turn before the finish, Losi went to the outer left of Joel while Tony went to the inside right. Whether Losi cut too close to Joel or Joel just didn't have the room to turn, just for a second, Losi's rear end was full of Joel's front end. Tony climbed over the inside marker and was clear to the finish. Losi cleared Joel and both took off, but it was too late; Neisinger was waiting at the line. No Hollywood movie could have done it better; World Championship driver Tony Neisinger was top gunslinger!

This was the most exciting race I've ever seen; it was everything that it was supposed to be—a genuine shootout of the best. Our congratulations to Ernie Provetti of Trinity and Gil Losi Sr. of Ranch Pit Shop for putting on a top-notch show. Even the losers were rewarded, as every driver received a trophy. They don't make races like that very often! I know where I'm going to fight it out next year... The Trinity ½-Scale Shootout! See you there, pardner!

\*Here are the addresses of the companies mentioned in this article:

Trinity, 1901 E Linden Ave. 20, Linden, NJ 07036.

(Continued on page 68)

## "THE WINNING EDGE WITH RC-10'S"

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JAMMIN' JAY HALSEY



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**GENE HUSTING**, Associate Electric's strategist explains why the car wins, the classes of races and where to start on your track to winning!

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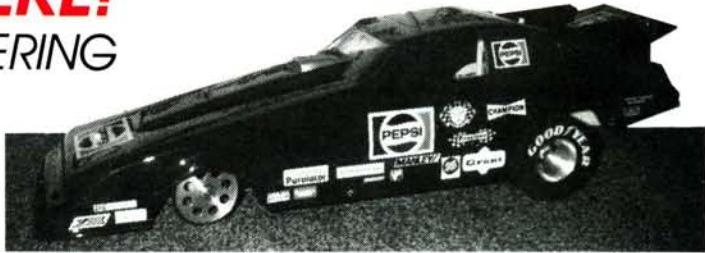
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(Continued from page 66)

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Associated Electric Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626.

Team Losi, 1655 E. Mission Blvd., Pomona, CA 91766.

Delta Manufacturing, 27 Racecar Ct., Loris, IA 50149.

TRC, P.O. Box 478, Oakboro, NC 28129.

## RC 10 TECH

(Continued from page 25)

gears. Place the same gears on the other side of the plate and spin them. Do the gears spin the same on both sides? If not, then check to make sure that each pivot is seated properly. We've seen a number of cases where the idle-gear pivot isn't seated properly. In one case, the nut on the drive pivot wasn't tightened, and therefore wasn't properly aligned. Alignment of the pivots is critical to good gear movement.

When the gears are acting the same on both sides of the spine plate, note whether they spin freely. If they don't, then it's time to get out the No. 6368 X-Acto needlefile again. Slowly turn each gear set and, with a pencil, mark the gears that bind. Mark both the drive and the idler gears. Both gears have 22 teeth, and the same teeth on both gears will mesh the same on each rotation. Remove one of the gears, rotate it eight to ten teeth and then re-install it. Slowly turn the gears again and note which marked teeth are binding this time. Remove the offending gear and file the marked teeth. Re-install the gear and repeat this test until there's no longer any binding. Don't forget to clean the bearings

(Continued on page 70)

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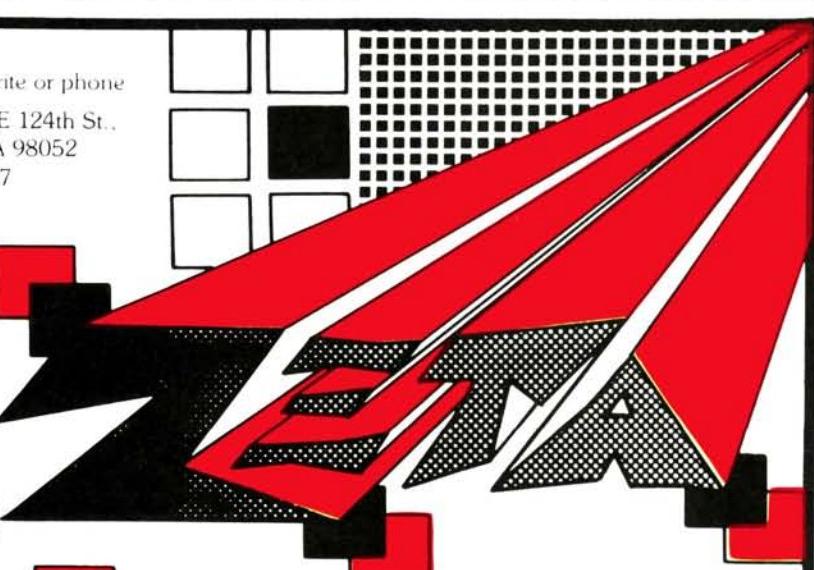
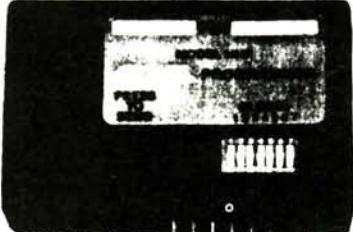
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## RC 10 TECH

(Continued from page 68)

and gears and oil them lightly. We use LaBelle\* No. 108 on our bearings and Break Free on our gears. Are we having fun yet?!

We've heard of people placing a small amount of rubbing compound on each of the gears, assembling the transmission and running the transmission for several hours. They then disassemble the trans-

mission, clean it and reassemble it. This technique places all the wear on the nylon gears. If you use this technique, use your bushings and not your ball bearings; the rubbing compound will enter the bearings, so increasing the wear of the bearings and possibly ruining them.

• Diff Shaft Assembly: Step No. 54 is the assembly of the diff shaft with thrust bearings. Here, the exchange of bearings is to increase heat dissipation by replacing the stock thrust bearing mounted in nylon with two thrust bearings mounted in aluminum. Two sets of Parma\* No. 1420F Thrust Bearings are needed. These bearings are primarily used in slot cars and may be hard to locate, but the benefits will be worth it. The washers that come with the Parma thrust bearings are thin, and they may not provide the proper spacing between the diff-shaft gear and the diff-tube pinion gear. If so, use the RC 10 stock thrust washer (with the small hole) as one of the three washers used. Cut the Teflon bushing flush with the face of the diff-tube pinion gear and assemble.

• Diff Tube Assembly: Prior to step No. 56, lightly sand the bearing adaptor along the edge opposite the ball bearing; this is

(Continued on page 72)

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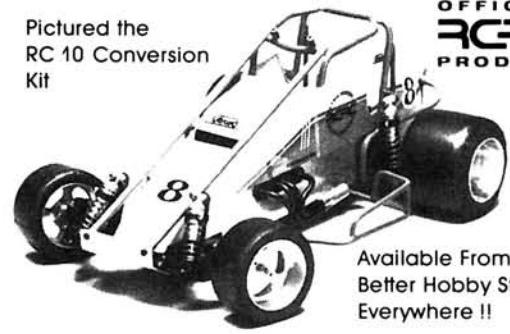
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## RC 10 TECH

(Continued from page 70)

the end that will be inserted into the transmission housing. Round the edge slightly to make installation easier. Replace the stock diff tube with Team Losi\* No. 4005 Diff Tube with Bearing, which offers greater stability for the diff shaft.

One of the most difficult assembly steps is step No. 62. To simplify this step, we made a simple tool out of a 6mm hex-head screw by placing the screw in an electric drill and filing it to the correct diameter of the diff pinion-gear front opening. Cut the screw shaft to 4mm and file it to the required 2.5mm. With this tool, you can now use the vise to assemble the diff tube.

- **Spur Gears:** Step No. 71 begins the assembly of the stock spur gear. This is a 32-pitch gear. Team Losi offers 64-pitch replacement gears; the major benefit with these is the increased choice of gear ratios. Team Losi gears are smoother and operate more quietly, but some of my fellow racers have complained that these gears are easier to strip. I haven't had this problem.

- **Lightening the Motor Mount:** At step No. 82, we make a minor modification to the motor mount. Measure .5 inch above the two screw holes and mark the positions. Draw a line through the two marks to the left-hand edge of the motor mount; the point where the line meets the left-hand edge is the new reference point. Draw a line from the top right-hand edge of the motor mount to the new reference point on the left-hand edge; this is the guide line for cutting the motor mount. This effort will only save about .25 to .5 ounce, but in the battle of weight, every ounce counts.

- **Transmission Housing Notes:** If you're using the Dart No. 272 bearings, before doing step No. 84 you should enlarge the hole where the drive gears go through the housing by sanding or reaming it slightly. (Follow the Dart instructions.) Install the Dart Output Bearings and do step No. 87 out of sequence. Spin-test to determine if any binding has resulted. If it has, disassemble and solve the problem; try again. The entire assembly should spin freely without binding. Ignore steps No. 97 and No. 98 in the instruction manual.

In step No. 85, we experienced binding on the diff-tube assembly when it had been installed. The binding was eliminated by sanding the adaptor hole in the transmission housing with rolled-up 100-grit sandpaper. You may need to repeat this process for the other bearing adaptor (step No. 92).

(Continued on page 74)

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**TOTAL:** \_\_\_\_\_

## RC 10 TECH

(Continued from page 72)

- Thrust-Ring Modification: For this modification, a working motor is required, and you'll have to disassemble the spur gear. Clean the thrust rings, diff tube and

diff outer hub with motor cleaner or alcohol. Lubricate the spur-gear ball bearings with diff lube, or substitute LaBelle No. 106 Gear Lube with Teflon. Place four *small* drops of CA on four

equally distant locations on the diff-tube thrust-ring seat. Place the thrust ring on the diff tube and give it a partial turn. Mount the spur gear. Repeat the CA routine for the diff hub and then reassemble it. Engage the pinion gear on the motor with the spur gear and turn on the motor for a moment. If there's any play between the thrust rings and their seats, this process will center them. Inspect the assembly for any glue that might have squeezed out, and clean it up by wiping it off or using Super Glue Debonder. Let it dry for several hours.

So far, the transmission has taken about two days of sanding, filing and adjusting to make the gears spin freely. The result will be less wear on your first motor, and bind-free gears use less energy, so you'll be more likely to win races. Next, we'll work on getting more out of the RC 10 steering. *Good racing!*

\*Here are the addresses of the companies mentioned in this article:

**Associated Electrics, Inc.**, 1928 East Edinger, Santa Ana, CA 92705.

**Dremel Manufacturing Co.**, 4915 21st St., Racine, WI 53406.

**BoLINK R/C Cars Inc.**, 420 Hosea Rd., Lawrenceville, GA 30245.

(Continued on page 83)

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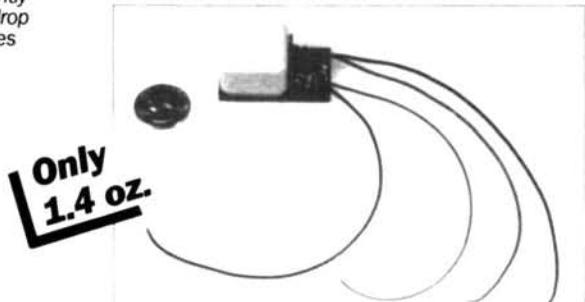
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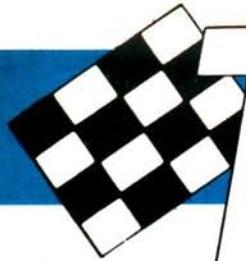
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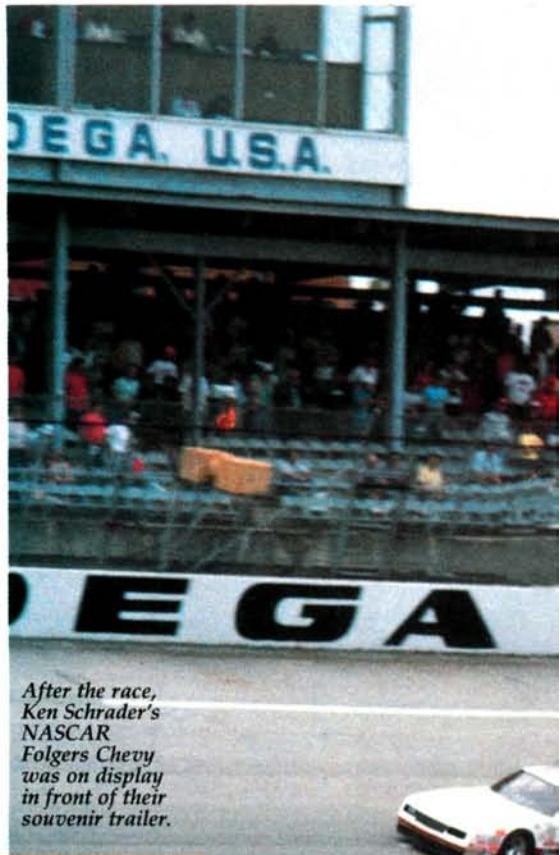
# TALLADEGA

IF YOU LIKE racing at the excitement of fender-to-fender stock-car speeds approaching 200mph, then Alabama International Motor Speedway (otherwise known as Talladega) is the place for you. This facility is awesome, with its long straightaways and sweeping corners making up the 2.66-mile lap length. The banking on the turns looks impressive enough from a distance, but when you stand at the bottom, it looks as though it goes almost straight up for several stories. Your first thought is of the guts it must take to drive on this track, but the racers drive it wide open. If the car is handling properly, they don't even lift the loud pedal a fraction on the corners.

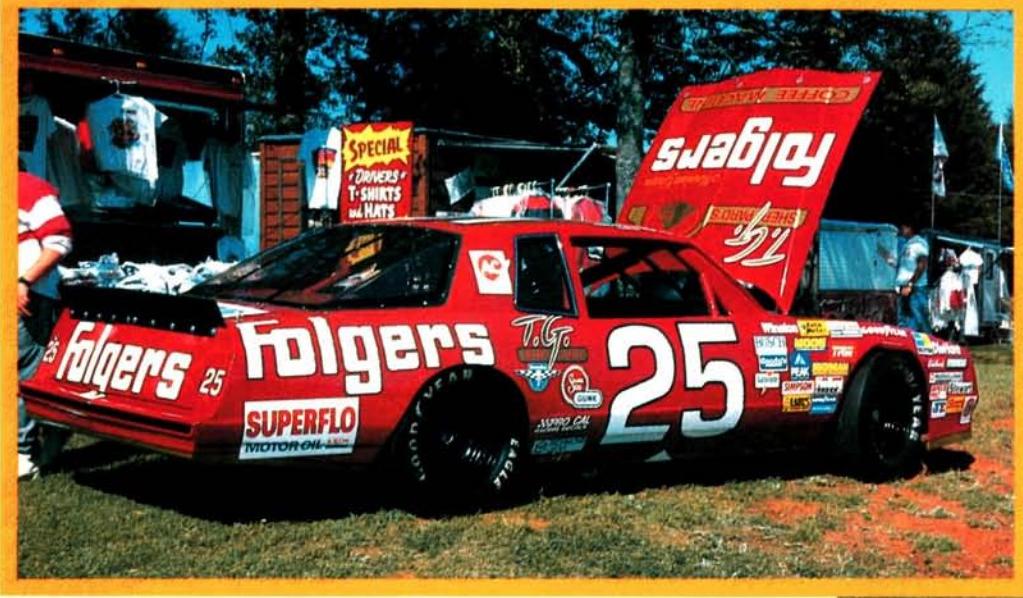
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## FAST ACTION!

by ERIC GOLDSCHRAFE



After the race, Ken Schrader's NASCAR Folgers Chevy was on display in front of their souvenir trailer.

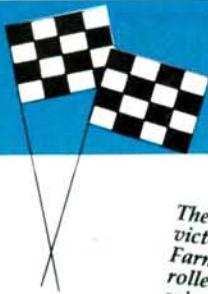


qualifying lap was set here (212.229mph, by Bill Elliott in '86), and the fastest time ever for a 500-mile race was also recorded here (2 hours, 41 minutes, at an average speed of 186.288mph, by Elliott in '85). Several records for closed-course speeds have been posted at Talladega, and the current record is held by Lyn St. James, who drives a Ford Probe.

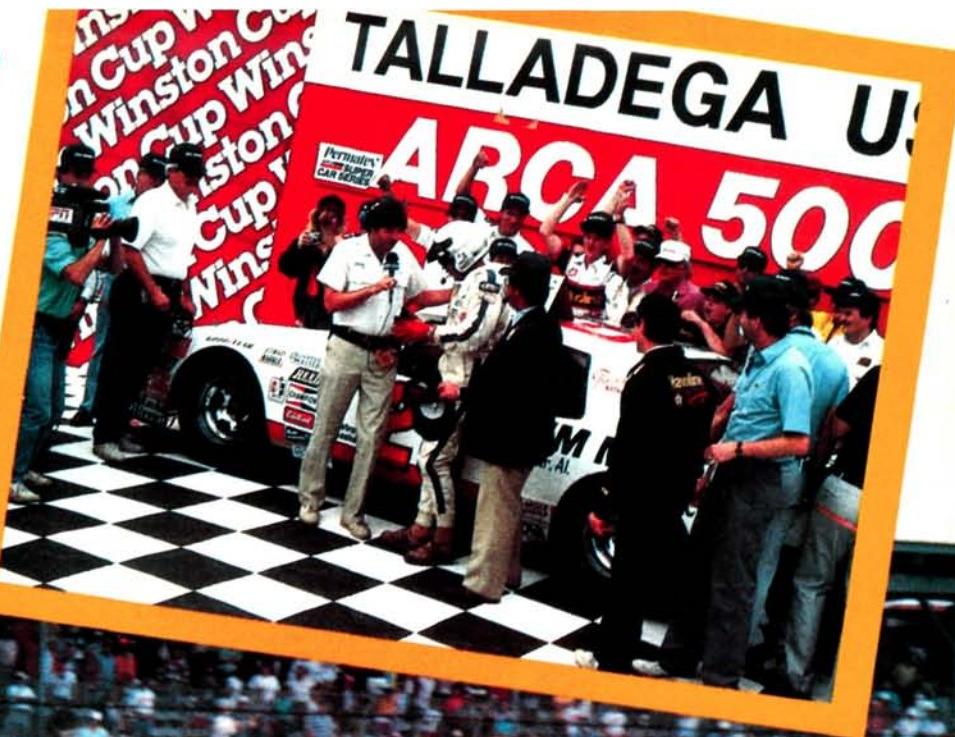
Twice a year, in May and July, the heroes of NASCAR make their appearances at the Winston 500 and the Talladega/Die Hard 500, and there's no better place to see them race. Almost any seat in the stands gives

an excellent view, and even from the infield, you can see almost all the way around. The support races put on by ARCA feature similar cars, but here it's also a battle between traditional V8 engines and the new breed of V6s. (In

# S



The thrill of victory was Red Farmer's, as he rolled into the winners' circle with Davey Allison's No. 28 ARCA car.



Above: The first full green-flag lap in the ARCA 500 has the whole field of cars going by with a thunderous roar, as pole sitter Patty Moise, driving car No. 37, leads the way.  
Left: Waiting in the wings for the NASCAR event is the new Morgan-McClure Racing Kodak Oldsmobile driven by Rick Wilson.

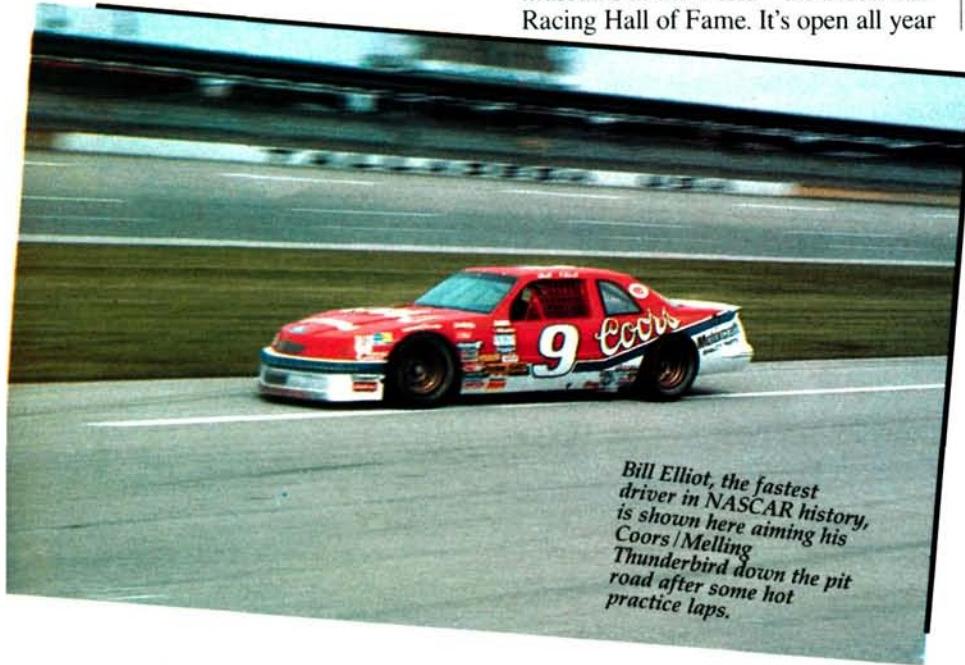


May '87, the V6s finished first and second, and they were only a couple of mph slower than the NASCAR cars.) Even with restrictor plates under the carburetors (reducing speeds, increasing safety), the cars are still very fast.

On race weekends, Speedway Boulevard (connecting I-40 and Rt. 77) is lined with souvenir stands. These full-size semi-trailer rigs have sides that open to display complete lines of race-related items. Most of these items are officially sanctioned by the big teams, such as Folgers, Levi-Garrett, Havoline, Ford Motor-sports, Winston Racing and Kodak. It's a great place to pick up a memento of your favorite driver.

(Continued on page 80)

As well as the track, Talladega boasts one of the greatest motor-sports museums in the world—the Stock Car Racing Hall of Fame. It's open all year



*Bill Elliot, the fastest driver in NASCAR history, is shown here aiming his Coors/Melling Thunderbird down the pit road after some hot practice laps.*

round and is, itself, worth making the trip. You'll see dozens of old and/or significant race cars, and there are trophies, personal effects and memorabilia. The cars are in beautiful condition (except for Phil Parsons' wrecked car, which is there to show the rugged construction of NASCAR autos), and they span the gamut of big-time stock-car racing. Included are cars once driven by Bill Elliott, Darrell Waltrip, Richard Petty, Curtis Turner, Junior Johnson and country singer Marty Robbins. One of "Big Daddy" Don Garlits' old Top Fueler rails is there, as are a couple of Indy cars and Malcolm Campbell's record-setting Bluebird from the '30s.

For tickets or other information, write to P.O. Box 777, Talladega, AL 35160, or call (205) 362-9064. It's off I-20 about 100 miles west of Atlanta and 40 miles east of Birmingham. See you at the track? ■

## Giant Davey Allison or $\frac{1}{10}$ -scale Havoline T-Bird?



*As a finishing touch, Davey Allison, driver of the NASCAR Havoline Thunderbird, put his John Hancock on the roof of the VonErlich-prepared BoLINK Eliminator 10.*

**H**OW CLOSELY CAN you make an R/C car resemble the real thing? When you know that it will be placed side by side with the full-scale car, despite your ability, you begin to get a little apprehensive. Part of the Talladega deal involved building a  $\frac{1}{10}$ -scale version of the now-familiar Havoline Thunderbird, which is driven by Davey Allison on the Winston Cup circuit.

Davey, the 27-year-old son of the legendary Bobby Allison, didn't waste much time reaching the "big league." He received the "Rookie of the Year" award from NASCAR in 1987, after an amazing season capped by two major wins. A native of Hueytown, AL, Davey considers Talladega his home track, and we thought it a good place to have the  $\frac{1}{10}$ -scale and the full-size cars get together.

As it turned out, this wasn't easy—as soon as Davey put his T-Bird on the pole, he was hounded constantly by the media. Saturday's ARCA 500K race saw veteran Red Farmer bring Davey's car into victory lane, so adding to his score of over 1,000 wins. In Sunday's Winston 500, Allison ran in the lead pack until engine problems forced his retirement.

Despite this excitement, the real Ranier/Lundy-owned Ford and the model racer did get together, and the scale version looked quite good. The only departure from an accurate scale paint job was the omission of the driver's name from the edges of the roof; Davey Allison's autograph is there instead. How did Davey like it? Well, it looks as though he might become an R/C racer himself one of these days!

This model was part of a project initiated by Loctite Corporation to show the relationship between its products used on full-scale cars and those available to us through its Hobby and Craft division. More on this subject, and a complete review of the model Thunderbird, will appear on these pages in the near future. ■

## RC 10 TECH

(Continued from page 74)

Reedy, 3585 Cadillac Ave., Costa Mesa, CA 92626.

Dari Racing, 11999 Plano Rd., Dallas, TX 75243.

LaBelle Industries, P.O. Box 328, Bensenville, IL 60106.

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Team Losi; distributed by RPS Distributing, 1655 East Mission Blvd., Pomona, CA 91766.

## ADVANCE DRAGIN'

(Continued from page 23)

minds of his competition, and the slightest lapse of attention can lose the race. Preparation is also very important, and Glidden's closely knit crew rarely errs in the car's set-up. As long as there's drag racing, you can count on Bob Glidden to put the "Pro" in Pro Stock, and keeping that coveted number "1" on his car will be his goal.

If this is the type of thing that makes your blood turn to 104 octane, the Advance Engineering\* Dragin' Pro Stocker is just the car for you! This kit has been around for a while, but with some of the latest accessories on the market today and a little fine-tuning, you can build a winner that really looks like a winner.

The Advance kit gives you the parts you need to construct your own Pro Stocker, including a GRP chassis, heavy-duty aluminum and steel running hardware, and big slicks mounted on extra-wide turned aluminum rims. The kit comes with a T-Bird body that will look like the real thing with a little "massaging." My example was done up as Glidden's car, but the Fords of IHRA stars Rickie Smith or Reid Whisnant would look just as sharp. (Smith's car is almost identical to Glidden's.) By using the body-modification techniques described in this article, the '88 Grand Prix stock-car body (BoLINK\* or McAllister\*) could be doctored to look like the Chevy Beretta of Joe Lepone, Jr., or Bruce Allen. The McAllister Protofab Camaro body could be used for one of the many P/S Camaros on the circuit, or paint-camouflaged into a Firebird like the one driven by Butch Leal.

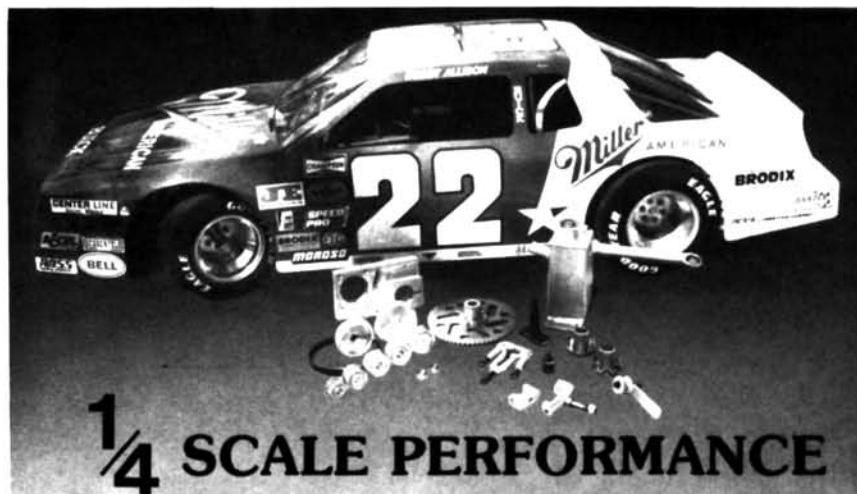
The most obvious body discrepancy is the NASCAR-style spoiler on the rear end. By carefully cutting this off and replacing it with a sheet-plastic "wing" spoiler, the body starts to look like a genuine Pro Stocker. Look at some photos or video tapes of the real cars, and you'll see how your car should look and how it should be mounted. The spoiler on the car

in this article was taped in place from underneath, but Pacer\* Poly-Zap (a new item) works on Lexan and could be used.

The other prominent feature—the huge

hood scoop (included in the kit)—is easily mounted from underneath through a close-fitting hole cut in the hood.

(Continued on page 90)



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# PROJECT BIG BEAR

by FRED L BEAVER

PART 1

facturing\* heavy-duty steering kit (part No. BB01) and front suspension stabilizer (part No. BB04). JG makes replacement heavy-duty front springs (part No. BB02), which I recommend if you plan to make many high jumps. These can be easily interchanged with the stock springs to accommodate differing situations. They also make a wide buggy-style front bumper and skid plate (part No. BB03). This might be a good investment, as

IT'S A REAL JUNGLE out there in Monster Truck Land. When the Marui\* Big Bear made its debut a while back, it had the field to itself, but some young upstarts soon came along to claim its territory. Have they succeeded? Judge for yourself. In the May '88 issue of *RCCA*, the Big Bear was number one in the "Monster Truck Shootout." This Shootout rated nine stock trucks in sled pulling, acceleration, top speed, handling, duration and price. Although the Big Bear only won in the price category, it did well enough in the other categories to capture an overall win. As Steve Pond put it, the Big Bear provides the "best bashing for the buck." It's an ideal first car for any beginner, due to its easy assembly, and it's a good second car for someone who already has a dune-buggy-type vehicle and wants something different.

Like most kits, the Big Bear can be upgraded to increase its performance and its ruggedness. These improvements can be done at a modest cost and will significantly enhance its capabilities in all areas. You can even go further and personalize it with one of the easily retrofitted custom bodies on the market. We have chosen to use a wide-bodied Volkswagen, because it goes well with the extra-wide, low-slung stance of the chassis, and because its rounded body style makes it more likely to roll back onto its feet after a crash. This body transforms the Big Bear into what we call the "Big Beetle," and our guidelines for making one are geared to a beginner on a budget.

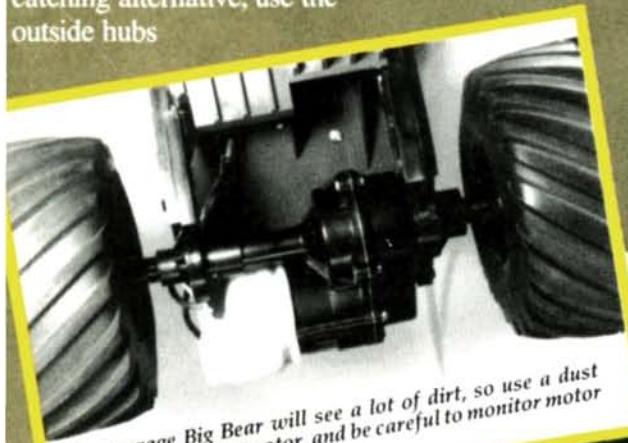
Ball bearings are of the highest priority when modifying any car, as they reduce rolling resistance, and I began my make-over by buying a set of the top-notch NMB\* Goldseal brand. The package for the Big Bear (part No. 1030) has four 5x11 bearings and four 7x11 bearings with two nylon shims.

To beef up the front end, you'll need the John Gudvagen Manu-

## CREATING THE MARUI MAULER

the bumper provided in the kit, although quite sturdy, will eventually head south if you slam into too many solid objects.

The wheels are the chrome-plated Big Bear outside hubs distributed by Pro-Line\* (part No. 2511), and these really improve appearance. The chrome can be protected from minor scratches with an application of a good-quality paste wax before assembly. As an eye-catching alternative, use the outside hubs



*The average Big Bear will see a lot of dirt, so use a dust cover to protect the motor, and be careful to monitor motor temperature.*

in the kit, and paint them the body color or a contrasting color.

A foam end-bell cover is vital, even if you never intend to use your car in the dirt. The tires will kick up a lot of debris, and this can get into your motor and damage it, even when you're just bashing around in your backyard or out on the street. The cover used for the Big Beetle is the very thick yellow one (part No. 2158) from Custom Racing Products\*. Bru-Line\* makes a thinner cover (part No. 205) for those who don't intend to run in the dirt, and this cover allows the motor to run cooler.

Another "must" is some sort of protection for the radio receiver to keep out moisture and dirt. While a balloon or plastic bag will work, it's best to use a purpose-made rubber bag like the excellent one made by Tamiya\* (part No. 5194).

The radio used for the Big Beetle is the Futaba\* Magnum



# BIG BEAR.

Sport, which is perfectly adequate for a car of this type. This particular package came with the R2GS receiver with BEC (battery eliminator circuit), a standard S148 servo and the MC112B electronic speed control. With BEC, there's no need for on-board receiver batteries, so you won't need the switch-holder provided in the kit. The electronic speed control goes in place of the resistor-type speed control the kit provides, and it has a Tamiya-style connector. Instead of using double-sided tape, you might consider using Velcro to secure



For a different look, BoLINK makes a Volkswagen replacement body for the Big Bear.

the receiver and speed controller. If you use Velcro, the components may be easily removed for chassis cleaning, or easily transferred to another car.

It's a good idea to use a thread-locking compound during assembly to keep the metal fasteners from vibrating loose during runs. Loc-tite\* 242 works well, but don't use it where it might touch plastic, e.g., the self-tapping screws, because it will dissolve plastic parts. A product such as PIC\* Vibra-Jam should be used in these areas.

A high-quality waterproof lubricant, e.g., Slip-It, is essential for all the friction points, except where grease is required. A tube of molybdenum grease will be needed to supplement the small amount included in the kit.

The body is the clear Lexan Volkswagen Beetle by Parma\* (part No. 10229), which has been designed specifically for the Big Bear and includes a mounting kit and instructions. Parma also makes clear Lexan pickup bodies that fit, including a duplicate of the Big

(Continued on page 89)



With Rick Edwards of Wallkill Wheels R/C Raceway at the transmitter, the Big Bear pulled a heavier load than the other 2WD trucks in our Monster Truck Shootout.



To add a little sparkle, Pro-Line makes a set of chrome replacement wheels.

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# BIG BEAR

(Continued from page 86)

Bear Datsun, a Jeep Honcho, and a Chevy Blazer. In addition, BoLINK offers several bodies for the Big Bear, including Chevy and Ford truck bodies, a van body and a Baja Bug body with a custom mounting kit.

The best time to paint the body is either before or during assembly. The Big Beetle is painted with Pactra\* Polycarb Metallic Red and Outlaw Black, using the four-ounce spray cans; one can of each is sufficient. The headlight buckets and door handles were painted silver, while the rear scoop was

spray the windows with Outlaw Black. When the windows are dry, carefully remove all the masking from the inside. If there was any overspray or seepage under the masking tape, this can be removed with extra-fine sandpaper. The scratches won't show when the body is painted. Paint small details, e.g., door handles, and let them dry. Make sure the outside is completely masked off, then paint the main body in your chosen color. Metallic colors are good, since they're very brilliant, and several thin coats are preferable to one heavy



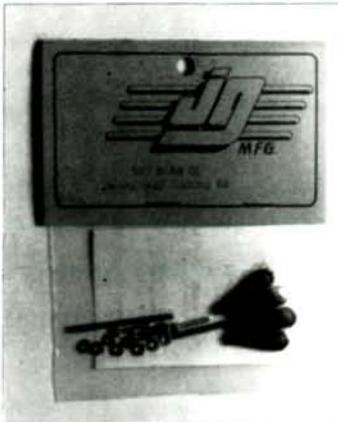
A set of bearings, such as these Goldseals from Ranch Pit Shop, ensure smoother running.



To tighten up the front end, a JG Front Suspension Stabilizer is used.

painted flat black. The tail-light "lenses" are pieces of red vinyl tape cut to size and applied to the outside of the body. The "KW" headlight covers are from the kit's decal sheet.

To help keep paint from getting on the outside, don't cut out the body before painting. Begin preparation by masking off the entire outside and inside, except for the windows; then



A JG steering kit replaces what is probably the weakest link in the Big Bear drive train.



If you want to add a little beef to the front suspension for those big jumps and bumps, use JG's heavy-duty front springs.

coat. Allow the paint to cure at least 24 hours before cutting it out. A word of caution: Don't

even attempt to cut out the fender wells with ordinary scissors; use either Lexan body scissors or the smallest curved-tip manicure scissors you can find. Four small dimples on the body show where you should drill holes for the mounting tubes. Make the diameter of the holes slightly larger than that of the tubes.

Before beginning assembly, paint black gloss on the inside of the wheel hubs, the plastic collars and tubes of the Parma

(Continued on page 106)

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## ADVANCE DRAGIN

(Continued from page 83)

While you're cutting up the body, note that the fender wheel cutouts aren't the same as on a stock car. The Pro Stocker wheel openings conform more to the shape of the original passenger car, while the scribed lines on the body show the rounded-out profile required for quick pit-stop tire changing. The big slicks generally cause the rear cutouts to be a little large, but they still follow the stock outlines. The body is also mounted quite close to the ground, to keep as much air as possible from getting underneath and lifting the car when it's traveling at speed. To move the rear mounting posts further back, my chassis has a somewhat larger piece of GRP material over the back wheels than the one supplied in the kit. This is a minor modification and may need to be done if a different body is used. Floquil\* Signal Red and Reefer White paint were used for this replica, and automotive flex agent was added to keep the paint pliable after drying. The big "Motorcraft" logos were cut from Top Flite\* MonoKote Trim Sheet material, and Coverite\* graphics were used for the smaller lettering.

No motor or speed control was provided in this kit (although the speed control is available in a "deluxe" kit), and here the possibilities are endless, due to the variety of hot parts on the market. However, a real killer car will cost you some big bucks; how much you spend depends on how fast you want to go. The average racer will be more than happy with a decent motor, a good speed control and a fresh 7-cell pack. When you've learned how to drag race and have mastered starting-line techniques and down-track controllability, you might consider boosting the car's performance.

The kit is really quite straightforward and can be assembled in an evening. The most critical part is the caster adjustment, and Advance recommends plenty to assist in straight tracking. I set this car up with the 30 degrees suggested in the instructions, and the car tracks straight, even under hard acceleration. Hook up the servo to give as little steering action as possible and so avoid over-controlling; you don't have to worry about turning corners on a drag strip!

Flexibility is designed into the chassis to absorb bumps (the front-end assembly incorporates a pair of coil springs as well), but a stiffener is included, too, for those of you who wish to use it. Advance has done extensive research, so try it *their* way

(Continued on page 95)

## ADVANCE DRAGIN

(Continued from page 90)

before you make changes. Watch the reaction of the car when it leaves the starting line, and look for any wheel-hop or bouncing. Wheelies might look cool, but air will get under the body and blow it over. (The car is quite light; this one weighed 2.36 pounds loaded.) Shift the weight around until acceleration is smooth and the front stays down, and, if necessary, look for more traction by doing a "burn-out" to heat up the tires.

I tried a Trinity\* Drag motor and a Robart\* speed control with good results, and scale quarter-mile times were in the three-second bracket. Top end is really impressive, but the high speed means you have to be careful. I found myself wishing that I had a chute in the car to slow it down! Hand-held stopwatches aren't much good for accurate timing when making small changes or adjustments, so for fine-tuning you'll need to run on a strip with bona fide electronic timing gear.

It really doesn't matter which motor or accessories you put in this car; you're going to have a lot of fun running it. You can always add a hotter motor later on, but you'll find that the best way to make the car go faster is to work on your "holeshot." Constant practice and quick reactions don't cost anything, but this is the stuff that wins races!

\*Here are the addresses of the companies mentioned in this article:

Advance Engineering, P.O. Box 766, Woodland Park, CO 80866.

BoLINK R/C Cars, Inc., 420 Hosea Rd., Lawrenceville, GA 30245.

McAllister Racing, 4545 Industrial St., Unit 5H, Simi Valley, CA 93065.

Pacer Technology, Inc., 1600 Dell Ave., Campbell, CA 95008.

Floquil Rt. 30N, Amsterdam, NY 12010.

Top Flite Models, 2635 S. Wabash Ave., Chicago, IL 60616.

Coverite, 420 Babylon Rd., Horsham, PA 19044.

Trinity, 1901 E. Linden Ave. #20, Linden, NJ 07036.

Robart Manufacturing, 310 N. 5th St., St. Charles, IL 60174.

## TIRE TRUING

(Continued from page 31)

"reactivate" the cement, so dip the parts quickly. When using chrome-plated plastic wheels, take extra care to wipe the thinner from the wheel when the tire has been mounted, as thinner may damage the finish. After dipping everything into thinner, place the tire horn over the wheel

(Continued on page 96)

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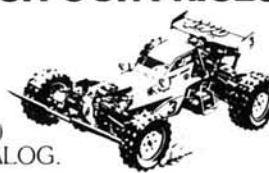
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## TIRE TRUING

(Continued from page 95)

and slide the tire over it and onto the wheel. You've just mounted a tire! If the donut isn't sitting on the wheel properly, you have a little time to move it around before the thinner evaporates. I've found that allowing a little rubber to hang over on each side of the wheel is best. When going for the scale look, you may prefer to allow more tire to hang over on the front of the wheel in order to round the side wall.

The tire should be ready for truing after sitting for about five hours. As I mentioned previously, the ideal method is using a tire-truing machine, but if you don't have one, the tires can be mounted on the car and trued while you hold the throttle on and lower the rear tires onto a piece of sandpaper. The front tires can be trued by chucking them up in a drill and, again, using a piece of sandpaper. This isn't the most effective way to true your tires, and it doesn't guarantee a perfectly round or balanced set of tires, but if you don't have a truing machine, this is the next best method.

When using a truing machine, the tire is simply mounted on the universal shaft that will hold the rim true. A "paddle," with sandpaper mounted on it, is slid down the shaft until it touches the tire. As the machine operates, move the paddle over the surface of the tire, going back and forth until the surface is uniform all around. To make a matched set of tires, there's a locking collar on the shaft that the paddle rides on to prevent it from moving any closer to the wheel. A piece of scrap sandpaper is used to shape the sidewalls.

If you find yourself in a compromising position because the compound tire you want is sold out, or if you want a set of "scale" tires for your concourse car, or just want to save some money, try mounting your own tires.

\*Here are the addresses of the companies mentioned in this article:

BolINK, 420 Hosea Rd., Lawrenceville, GA 30245.

Twinn-K Inc., P.O. Box 31228, Indianapolis, IN 46231.

Parma International Inc., 13927 Progress Pkwy., N. Royalton, OH 44133.

T&M Racing, 11018-113 Old St. Augustine Rd., Ste. 56, Jacksonville, FL 32223.

Kimbrough Products, 1430 E. St. Andrews Pl., Santa Ana, CA 92705.

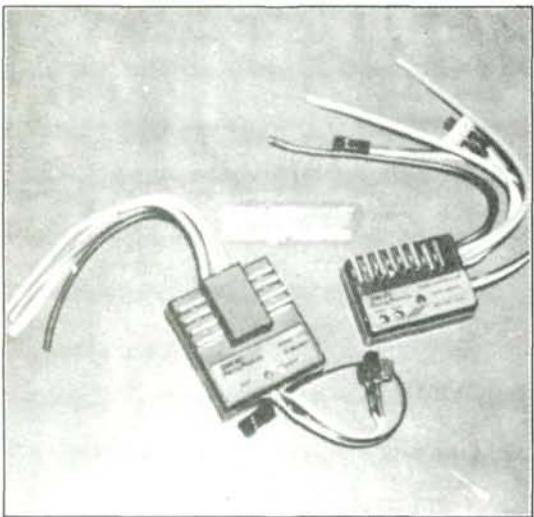
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## SONIC FIGHTER

(Continued from page 37)

not to connect red to black and so blow up his receiver.

The most difficult steps in building the Sonic Fighter were Steps 26 and 27—the installation of the semi-trailing arms. Unfortunately, I haven't found an easy way to do it. The problem is the extremely tight fit of the trailing arms and the black side piece (R5) that screws to the chassis. It takes a lot of force to push these pieces into place. When the trailing arm has been installed, it doesn't really swing freely; the arm clicks from one position to another. If this friction could be removed, the rear suspension would be even better than it is now. To compensate for this problem, a stiff spring is mounted on the rear shocks.

The Tamiya shocks are easy to build and they work very well, but the Sonic Fighter shocks don't offer any adjustment for spring tension. Tamiya usually provides snap-on clips to change spring tension, but the clips wouldn't really be very useful, because this car has such stiff springs.

The Sonic Fighter is very similar to the Tamiya Striker and the Futaba FX 10. The big difference is the oil-filled coil-over shocks, and I'm sure these are the reason the Sonic Fighter handles so well.

The Sonic Fighter is designed to use only two different sizes of pinion gears, and an 18-tooth pinion gear is included in the kit. A 19-tooth pinion is optional, and will increase speed, but decrease run time. There are two sets of holes for mounting the motor, depending on which pinion is used. This means that a beginner R/C racer doesn't have to be concerned with gear mesh, since it's automatic. Also, the gears can't be knocked out of alignment in a wreck.

**PERFORMANCE:** The performance of the Sonic Fighter is a little surprising; the car is quick off the line. Many people think adjustable ball differentials are the only way to go, but a gear differential is very hard to beat off the line. The geared diff on the Sonic Fighter works extremely well, and it's the only way to go for an entry-level car. A beginner wouldn't be able to get an adjustable ball differential set up as well as the standard unit used here.

The car has good speed with the box stock motor. The three-step speed control isn't very precise, but it works well enough in sport application. For racing, a rheostat control would work better.

The tires worked well and had very

(Continued on page 103)

## SONIC FIGHTER

(Continued from page 98)

good balance of traction, front to rear. The Sonic Fighter holds a line through low-speed or high-speed corners, and the car is easy to drive.

Jumps were a major problem. If jumps aren't taken squarely, the Sonic Fighter does a barrel-roll in flight, seldom landing rubber-side down! Perhaps Tamiya did too good a job of making this car look like a jet! The problem is the high CG. The upper body is of molded plastic rather than of a lighter polycarbonate material, the servos are mounted quite high in the chassis, and the motor is quite high above the axle line. All of these factors keep the CG a little too high. The body and the speed-control servo could be replaced or moved, and this should help to correct the problem.

While this car will never win a World Championship, it will give lots of new drivers a good point of entry into our sport. The Sonic Fighter handles well! and has the potential to be even better with only minor changes.

Tamiya continues to do its homework, and may now be threatening the market for its Hornet with its fully independent-suspension Sonic Fighter. When the Sonic

Fighter is made to fly straight, it will start to win a lot of races for new drivers.

\*Here are the addresses of the companies mentioned in this article:

MRC/Tamiya, 2500 Woodbridge Ave., Edi-

son, NJ 08817.

Kyosho; distributed by Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.

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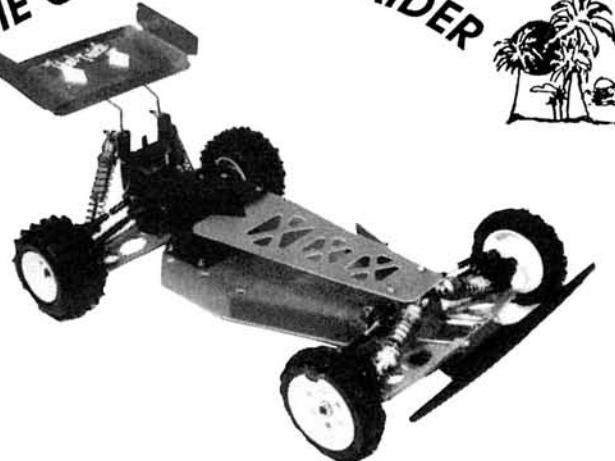
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# What's New



## GREAT PLANES

Now, from Kyosho, comes the Shadow, an economical 4WD car for beginner-to-intermediate modelers. The Shadow is shaft-driven and has fully independent suspension, four coil-over shocks and low-profile wheels and tires. Its sturdy design is built to withstand the abuses of off-roading.



Kyosho is proud to announce its latest 2WD car, the Kyosho Turbo Ultima. Based on the World Champion Kyosho Ultima, the Turbo Ultima incorporates many of the features used by the world's top drivers. The Turbo Ultima includes a special heavy-duty chassis, Platinum shocks, special radio plate and shock towers, universal swing shafts, special linkage set, aerodynamic body, hardened final pinion gear, ball differential and chrome wheels.

For more information, contact Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.



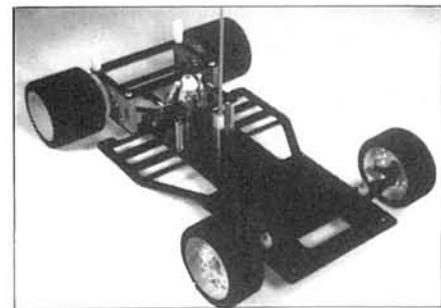
## PARMA

The Schumacher Cat is a dominant force in competition off-road racing. Parma has now introduced front and rear replacement tires for the Schumacher Cat, and these are also very effective on other popular 4WD competition cars. These tires have extremely good bite for the medium-to-hard surfaces found on most race tracks.



Parma's new look in racing motors includes race-proven on-road, off-road, oval- and drag-racing wins. Our stock Yokomo and K motors have advanced timing for more torque and higher rpm. Modified motors also include new boat and airplane versions.

For a complete list of motors available from Parma, visit your local hobby dealer and look at the back of a motor package, or contact Parma International, 13927 Progress Pkwy., North Royalton, OH 44133.



## COMPOSITE CRAFT

Composite Craft is proud to announce the release of its new 1/10-scale on-road racer, the Predator Lynx. This car features a new, advanced, rear suspension system that allows the rear pod to ride freely on four linkage arms with roll rate and suspension damped by two micro-shocks. Other features are lightweight aluminum pod sides, a complete set of ball bearings, trued and mounted tires and wheels and all-graphite construction. This car was used by Team Trinity's Bob "Bullet" Light to win the 1987 1/10-scale On-Road Championships in Houston, TX, and it placed first and second in the Florida State Series. A conversion kit is also available for those who already own a Predator and would like to update it.

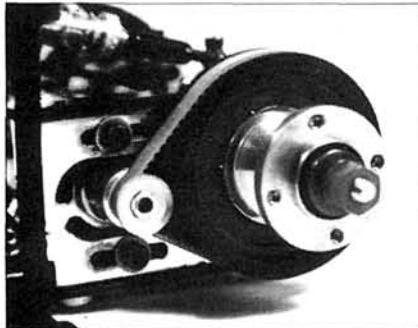
For more information, contact Composite Craft, 2400 Sand Lake Rd., Orlando, FL 32809.



## RPS DISTRIBUTING

Team Losi Revolution Super Stock motors are known the world over for their superior performance on both off-road and oval racing. Now these Super Stock motors come equipped with an improved end bell that features new built-in heat-sinks which provide extra cooling capability.

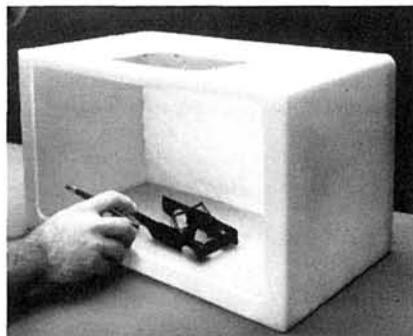
For more information, contact RPS Distributing, 1655 E. Mission Blvd., Pomona, CA 91766.



### S.S. INDUSTRIES

The new Hyperdrive from S.S. Industries brings a belt drive to the electric  $\frac{1}{12}$ - and  $\frac{1}{10}$ -scale 2WD on-road racers. This revolutionary new drive setup runs with less friction than the standard pinion/spur gear drive, handles more power, adjusts easily, allows longer run times and runs silently.

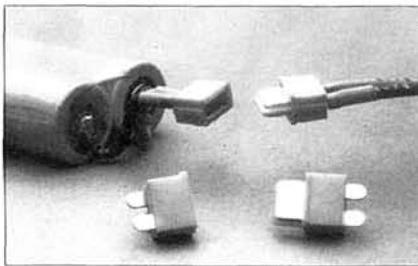
For more information, contact S.S. Industries, 2109 Patti Ave., Springdale, AR 72764.



### BADGER AIR-BRUSH

Spray in a healthier and cleaner environment with this easy-to-clean polypropylene translucent booth. This spray booth weighs only 10½ pounds, so it's easy to carry and store when not in use. The booth measures 200 inches long by 12 inches deep by 12 inches high. An 8x5-inch top-mounted Plexiglas window allows more light to reach the work surface. It includes a  $\frac{1}{2}$ shp, 3,100rpm induction shaded blower with replaceable filter and complete instructions on venting.

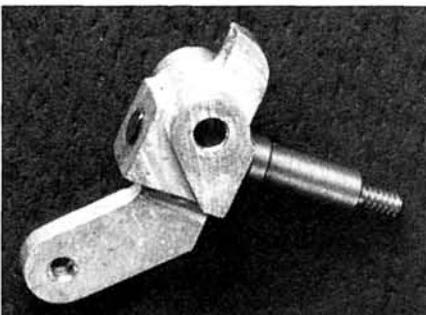
For more information, contact Badger Air-Brush Co., 9128 W. Belmont Ave., Franklin Park, IL 60131.



### RACE PREP

Race Prep's new connectors feature a totally new design for superior connections and super low-voltage drop. With over ten times the contact surface area of most conventional connectors, the new Race Prep connectors are as close to "hard wiring" as you can get without a soldering iron. Put an end to loose connector pins with these compact, yet efficient, connectors. Large solder lugs will accommodate up to 14-gauge wire.

For more information, contact Race Prep, 20115 Nordhoff St., Chatsworth, CA 91311.



### W.S.S. INC.

W.S.S. Inc. has just introduced a virtually unbreakable steering block for the Associated RC 10. This steering block is a one-piece assembly made of aircraft-quality aluminum to ensure durability, and the stainless-steel axle is threaded and epoxied into the steering block, so eliminating the inferior E-clip fastener.

For more information, contact W.S.S. Inc., 63 North Cherry St., Wallingford, CT 06492.



### DAHM'S

This lightweight heat-sink bolts directly to the Associated RC 10 motor mount to reduce heat build-up. The Super Cooler's universal design adapts to many radio-control cars and to some battery chargers. For extra cooling, use two Super Coolers (one bent out so that the other nests inside it).

For more information, contact Dahm's, P.O. Box 386, Cupertino, CA 95015.



### MCS PRODUCTS

MCS Products now offers a variety of heat-sinks for cooling virtually every hot spot on your electric R/C car. The MCS Motor Plate Heatsink is designed for the RC 10 and other cars with metal motor plates. When these heat-sinks have been bonded on, they increase the surface area of the motor plate and this allows better cooling. This translates into longer run times, extended motor life and less wear. The MCS electronic speed control heat-sinks not only provide 20 to 80 percent better thermal cooling performance, but they also provide priceless protection for your expensive speed control. When an electronic speed control is subjected to heavy loads, heat is generated, and the internal resistance of the speed control will increase. Using the MCS heat-sinks will keep the internal resistance, as well as the temperature, lower.

For more information, contact MCS Products, 502 Price Dr., Lewisville, TX 75067, or Norm's R/C Hobbies, 234 Farmers Branch Shopping Center, Dallas, TX 75234.

Descriptions of new products appearing on these pages were derived from press releases supplied by the manufacturers and/or their advertising agencies. The information given here does not constitute endorsement by Radio Control Car Action, nor guarantee product performance or safety. When writing to the manufacturer about any product described here, be sure to mention that you read about it in Radio Control Car Action.



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**R/C Car Action Decals,  
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## BIG BEAR

(Continued from page 89)

body-mounting hardware, and the JG front suspension stabilizer. The easiest way to paint these is to thread them onto suspended coat hangers. You won't need the body mounts provided with the kit. Following the illustrated guidelines provided with the Parma body, drill out the holes in the chassis for securing the body-mounting tubes.

In the next issue, I'll finish the Big Beetle by explaining the modifications necessary to the running gear, and I'll also

give you some assembly and maintenance tips.

\*Here are the addresses of the companies mentioned in this article:

**Marui**; distributed by Model Expo Inc., 23 Just Rd., Fairfield, NJ 07007.

**NMB**; distributed by RPS Distributing, 1655 E. Mission Blvd., Pomona, CA 91766.

**John Gudvagen Manufacturing**, P.O. Box 6014, Whittier, CA 90609.

**Pro-Line**, P.O. Box 456, Beaumont, CA 92223.

**Custom Racing Products**, 3250 El Camino Real B-3, Atascadero, CA 93422.

**Bru-Line Industries, Inc.**, P.O. Box 3786, Center Line, MI 48015.

**MRC/Tamiya**, 2500 Woodbridge Ave., Edison, NJ 08817.

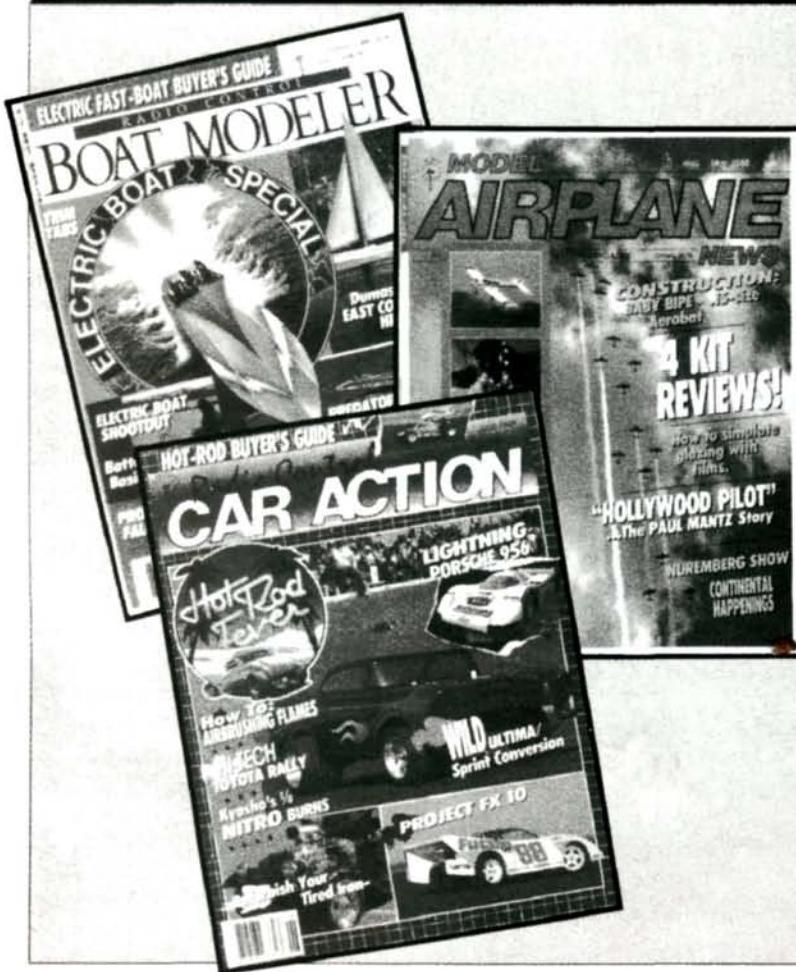
**Futaba Corp. of America**, 555 W. Victoria St., Compton, CA 90220.

**Loctite Corp.**, 4450 Cranwood Ct., Cleveland, OH 44128.

**PIC**, 943 Sierlin Rd., Mountain View, CA 94043.

**Parma International Inc.**, 13927 Progress Pkwy., North Royalton, OH 44133.

**Pactra**, 410 N. Michigan Ave., RM 1280, Chicago, IL 60611.



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## DETAILS, DETAILS

(Continued from page 48)

required GM-style seat-belt buckle-release mechanism. (This is standard, to help safety crews rescue a driver from a smoke-shrouded car.)

Full-size cars don't use headlights, so

the area is covered with metal plates or fairings that may be left unpainted, painted in the body color, or painted a contrasting color. Use photos of your chosen car to determine which color scheme was used, and duplicate this with

paint or MonoKote.

Cars built for short-track racing usually have screened-over openings in one or both left-side headlights to get air into the oil cooler, which is always mounted

(Continued on page 116)

# REEDY Modifieds

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## DETAILS, DETAILS

(Continued from page 112)

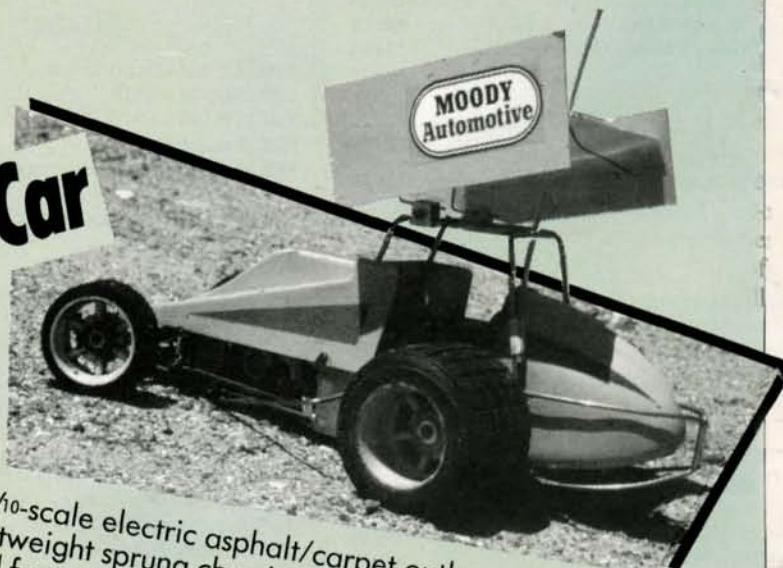
inside the left-front fender area. On these short-track cars, the lower front valance panel may have a screened duct on each side leading to the front brakes. These screened metal plates may be duplicated with small pieces of the screening material over a piece of chrome, aluminum, or body-colored MonoKote cut to fit the opening.

Grill-work may be done in the same way, again referring to photos of the full-size car. If the weather is cool, or a little more streamlining to gain the last tenth of a mile per hour is needed, part of the grill and/or some of the other frontal openings may be closed with silver duct tape to reduce drag. This effect could be achieved with strips of silver MonoKote applied in the appropriate places.

Along the sides of a superspeedway car, you'll notice that the wheel openings are cut to conform closely to the tires, as this reduces the turbulence that occurs at high speeds. Short-track cars leave a little more room to facilitate tire changing, and to allow for the sheet-metal damage that's expected in the course of "normal" short-track action. The exhaust pipes exit

(Continued on page 131)

# The Awesome Charger Sprint Car



Scratch-build your own 1/10-scale electric asphalt/carpet outlaw sprint car. This super-lightweight sprung chassis is constructed of flexible music wire and features a changeable wheelbase that allows the use of many different body styles. The Charger Sprint Car is fast and maneuverable. Blueprint is only \$9.99 plus \$1.50 postage and handling.

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## DETAILS, DETAILS

(Continued from page 116)

under the sides of the car. Sometimes there's one on each side, but often both are on the left side, just in front of the rear tires. Pieces of aluminum tubing could be attached to the chassis to produce this effect on your model, but keep the tips flush with the body sides. (The organizations that sanction model racing don't take kindly to pieces of metal sticking out from the sides of cars!)

Full-size cars also have some sort of mark to help position the jack during those frantic pit stops. This ensures that a bad guess about jack placement won't result in a crushed tailpipe or other damage. Each team has its favorite method, e.g., a small arrowhead, a line, a small decal, or another mark low on the door panel to show the jacking point on each side. Use your reference material to decide on this feature.

At the rear of the left side (or on the right side of a car built for Riverside or Watkins Glen—the road courses), there's a recessed dry-break gas-fill fitting. Some Lexan bodies have this molded in, and it's easily simulated with a dot of chrome MonoKote and a McAllister gas-fill-opening decal (in black or white). The vent for the gas tank is on the back valance panel below the spoiler. This is a small opening that allows air to escape when you fill the tank, and the overflow shows when the tank is full. This detail could be a small piece of metal or plastic tubing protruding through the body and glued from the inside. It may be left unpainted, or painted to match the car. Don't overdo the size here, as NASCAR restricts the vent-pipe diameter. On some cars, the taillight openings are carefully blended with the body work; others merely use metal plates riveted or screwed into the openings (painted or left unpainted).

To win, full-concourse models will probably require at least a suggestion of an interior, but this shouldn't be that difficult to produce. A piece of artist's foam-core board cut to the size of the inside opening will be very light, and may be painted easily. A dashboard with some "gauge" details could be added, and internal windshield bracing would be a nice touch. At least a suggestion of a roll-cage assembly (possibly done with soda straws) would add a lot, and a driver (at least a head and shoulders!) is just about mandatory. If you have difficulty finding one, check the model airplane accessories for a usable figure, and remember that most big-time drivers

(Continued on page 134)

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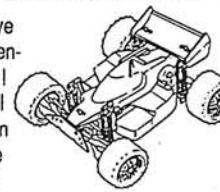
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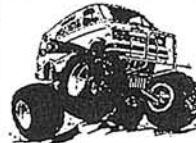


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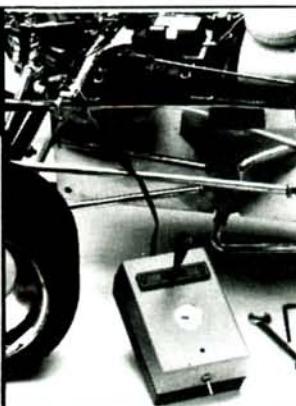
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(Continued from page 131)

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There's more to this, and it will appear in future issues of *RCCA*. This article wouldn't have been possible without the cooperation of some pretty swell guys—Chris Abate, John Fox and John Carollo of Loctite Corporation\*. Thanks, guys!

\*Here are the addresses of the companies mentioned in this article:

MonoKote; distributed by Top Flite Models, 2635 S. Wabash Ave., Chicago, IL 60616.

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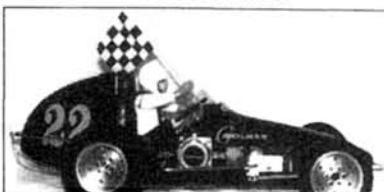
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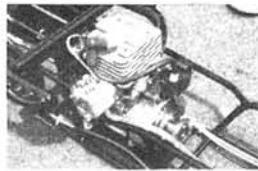
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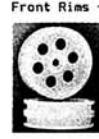
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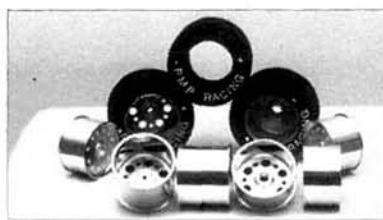
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In keeping with our constant efforts to help foster the growth of the radio-control car hobby, we've decided to run this track directory intermittently to inform modelers where they can race and exchange ideas. If you'd like your track listed, send us your name, address, phone number and some information about the track to **R/C Car Action Track Directory**, 251 Danbury Road, Wilton, CT 06897.